

## erwin DI Suite

# Metadata Manager

## Quick Start User Guide – v9.3

### Getting Started

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### About Metadata Manager

The Metadata Manager® lets you scan in your enterprise Metadata and store it in the centralized repository to access it anytime. It also provides a consolidated metadata repository that lets you manage all your data dictionaries and analyze both upstream and downstream impacts in a matter of minutes. The Metadata Manager helps in managing enterprise metadata and provides an easy to use GUI to end users to quickly navigate and search business information through the repository thereby improving visibility and productivity.

## Quick Access Section

### Scanning Metadata

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- Create New Version [click](#)
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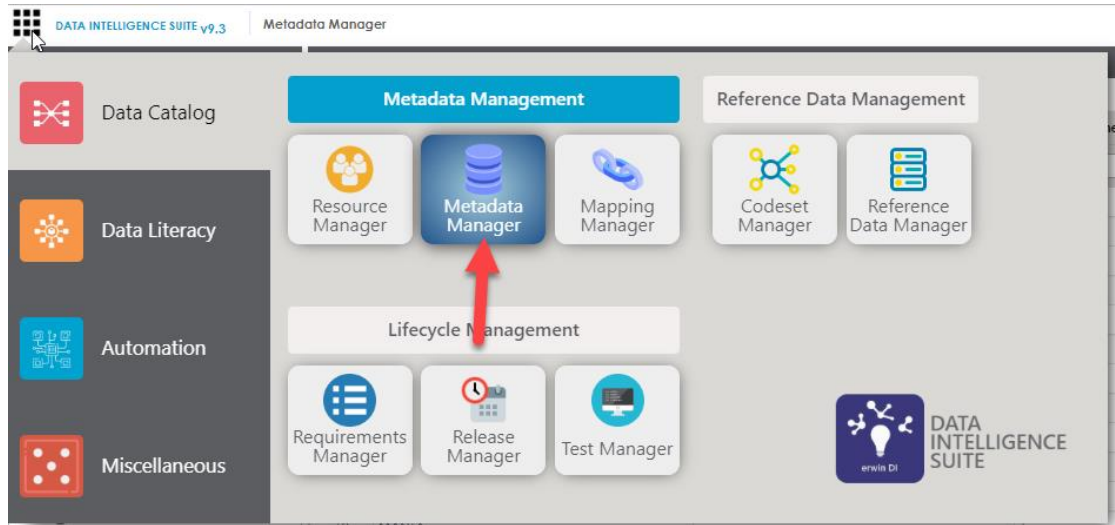
### Maintaining Enterprise Data Dictionaries [click](#)

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- ✚ Data Preview capabilities [Click](#)
- ✚ Create Custom Tables/Columns [click](#)
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## GUI and Screen Layout

Click on the Unified Platform Menu icon  on the top left corner and click on "Metadata Manager" icon in the Launchpad menu to access the Metadata Manager module.

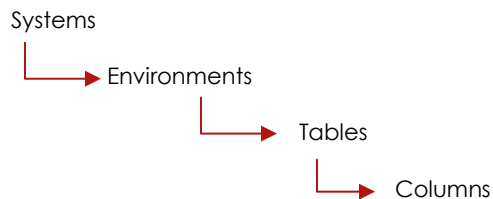


Metadata Manager homepage displays upon accessing the Metadata Manager module with following information.

- System Catalogue browser which displays the metadata tree (bottom frame)

System Catalogue		System Details				
<ul style="list-style-type: none"> <li>Metadata <ul style="list-style-type: none"> <li>3rd Party Flat Files</li> <li>ABB Global</li> <li>ADS</li> <li>AMM</li> <li>Atlas Sales System</li> <li>BCBS</li> <li>BO Reports</li> <li>BO Universe</li> <li>Customer Order Entry</li> <li>EDW</li> <li>ERP Systems</li> <li>Erwin Models</li> <li>Hadoop HDFS</li> <li>MISMO</li> <li>ODS</li> <li>Oracle</li> <li>SalesForce</li> <li>SAP</li> <li>Silwood SAP Model</li> <li>Teradata</li> </ul> </li> </ul>	#	System	Business Purpose	# of Environments	Created By	Created Date
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	1	3rd Party Flat Files		3	Administrator	2015-03-10 11:31:13.447
	2	ABB Global		1	Administrator	2016-11-22 19:43:02.167
	3	ADS		5	Administrator	2016-09-27 02:50:25.043
	4	AMM		12	Administrator	2015-10-28 11:38:19.577
	5	Atlas Sales System		1	Administrator	2015-03-13 07:01:01.543
	6	BCBS		1	Administrator	2015-03-31 10:19:18.223
	7	BO Reports		1	Administrator	2015-03-31 08:51:45.38
	8	BO Universe		1	Administrator	2015-03-31 08:53:00.41
	9	Customer Order Entry		1	Administrator	2015-03-13 07:03:32.557
	10	EDW		3	Administrator	2015-03-10 11:31:54.487
	11	ERP Systems		4	Administrator	2016-09-19 01:49:33.203
	12	Erwin Models		3	Administrator	2016-07-19 02:55:59.683
	13	Hadoop HDFS		2	Administrator	2016-07-19 02:07:26.5

The following hierarchy is maintained in the System Catalogue tree to identify the metadata



**System:** It is a logical collection of Environments

**Environment:** It represents the Source (Database; Flat files; Data Modelers etc.) from where you want to scan the metadata

**Data Steward:** A person responsible for the management and fitness of both the metadata and content.

**Systems:** Click on a System to view the Environments in it.

1. Consolidated list of all Environments for the selected System is displayed (Left Frame)
2. Systems details screen displaying the following(Right Frame)
  - a. Environments
  - b. System Details
  - c. System Documents
  - d. Extended Properties

**System Catalogue**

- Metadata
  - 3rd Party Flat Files
    - 3rd Party Customer Files
    - Customer Flat Files
    - Product Flat Files

Environments			
Environment Listing			
#	Environment Name	Environment Type	DBMS Name
1	3rd Party Customer Files	prod	MS Excel File
2	Customer Flat Files	prod	MS Excel File
3	Product Flat Files	prod	MS Excel File

**Environments:** Click on an Environment to view the list of tables in it

1. Consolidated list of all tables for the selected environment is displayed (LEFT FRAME)
2. Environment details screen displaying the following (RIGHT FRAME)
  - a. Tables
  - b. Environment Details
  - c. Documents
  - d. Impact as Source
  - e. Impact as Target
  - f. Extended Properties
  - g. Scheduled Jobs

**System Catalogue**

- Metadata
  - 3rd Party Flat Files
    - 3rd Party Customer Files
    - Customer Flat Files
    - Product Flat Files

Tables					
Data Dictionary					
S.No	Table Name	Table Alias	Table Class	Type	Logical Table Name
1	DimAccount			TABLE	Customer Account
2	DimCurrency			TABLE	
3	DimCustomer			TABLE	Customer Dimension
4	DimDepartmentGroup			TABLE	
5	DimEmployee			TABLE	

**Tables:** Click on a Table to view the list of columns under it

1. Consolidated list of all columns for the selected table is displayed (LAFT FRAME)
2. Table details screen displaying the following (RIGHT FRAME)
  - a. Columns
  - b. Table properties
  - c. Impact Analysis

- d. Forward Lineage
- e. Reverse Lineage
- f. Preview Data
- g. Extended Properties
- h. Test Specification

S.No	Column Name	Column Alias	Column Class	Logical Column Name	Column Datatype	Column Length
1	AccountCodeAlternateKey			Customer Account Alt Key	int	10
2	AccountDescription				nvarchar	50
3	AccountKey				int identity	10

**Columns:** Click on a Column to view its properties

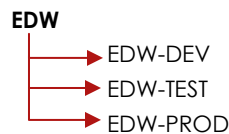
1. The following properties for a column are displayed (RIGHT FRAME)
  - a. Column properties
  - b. Impact Analysis
  - c. Forward Lineage
  - d. Reverse Lineage
  - e. Extended Properties
  - f. Valid Values

Technical Properties		Business Properties	
Column Name	AccountCodeAlternateKey	Data Type	int
Data Domain	kardomain	Length	10
Precision	0	Scale	
Data Default Value		Identity Flag	<input type="checkbox"/>
Nullable Flag	<input checked="" type="checkbox"/>	Percent Null Value	
Natural Key Flag	<input type="checkbox"/>	Primary Key Flag	<input type="checkbox"/>
Foreign Key Flag	<input type="checkbox"/>	Foreign Key Table Name	
Foreign Key Column Name		ETL Default Value	
Minimum Value		Maximum Value	
File Starting Position			
Data Steward		Column Comments	alternate key
Column Definition	Primary Key	Used in Gap Analysis	<input type="checkbox"/>
Logical Column Name	Customer Account Alt Key		

## Scanning and maintaining Metadata

Metadata is stored and categorized into Systems and Environments. SYSTEM is the highest node in the System Catalogue tree and a System can contain multiple environments. Environments can denote a database, flat file, data model etc. Environments contain database objects like Tables, Views, Synonyms etc. and Tables contain Columns/Attributes.

E.g. **EDW** would categorize as a System while *EDW-DEV*, *EDW-TEST*, *EDW-PROD* would categorize as multiple environments.



### Defining Systems

- o Creating a New System
- o Updating System Details
- o Delete Systems

- ✚ Defining Environments
  - Creating a New Environment
  - Update existing environments
  - Delete Environments
- ✚ Scanning Metadata

## Defining Systems:

### Creating New Systems

1. Right click on the **"Metadata"** node in the System Catalogue tree and click **"New System"**
2. Enter the **"System Name"** (mandatory) and other fields and click the **"Save & Exit"** icon to create the New System or click the **"Next"** icon to continue creating new Environment.

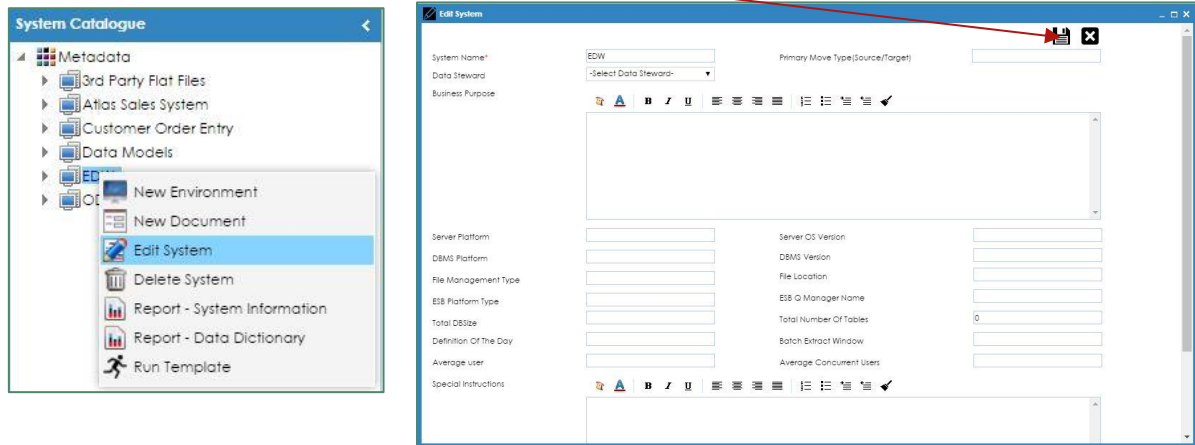
The image shows two parts of the Erwin interface. On the left is the 'System Catalogue' tree with a 'New System' button highlighted next to the 'Metadata' node. On the right is the 'New System' dialog box. The 'System Details' tab is active, showing fields for System Name (filled with 'New\_System'), Data Steward (dropdown menu open showing a list of names), Business Purpose, Server Platform, DBMS Platform, File Management Type, Owner Name, Telephone Number, Primary Move Type (Source/Target), Server OS Version, DBMS Version, File Location, Release, and Email Address. Buttons for 'Next', 'Save & Exit', and 'Cancel' are at the top right.

3. Click **"Next"** icon to continue with creating a new environment.

The image shows the 'New Environment' dialog box. The 'Configuration Details' tab is active, showing fields for System Environment Name, System Environment Type, Data Steward (dropdown menu open showing a list of names), Server Platform, Server OS Version, File Management Type, File Location, Production System Name (dropdown menu open showing 'Choose Production System'), Production Environment Name, and DataBase Type (dropdown menu open showing a list of database types). There is a checkbox for 'Apply To All Tables & Columns'. A large blue box with the text 'Please Select DataBase Type' is overlaid on the right side of the dialog. Buttons for 'Previous' and 'Cancel' are at the top right.

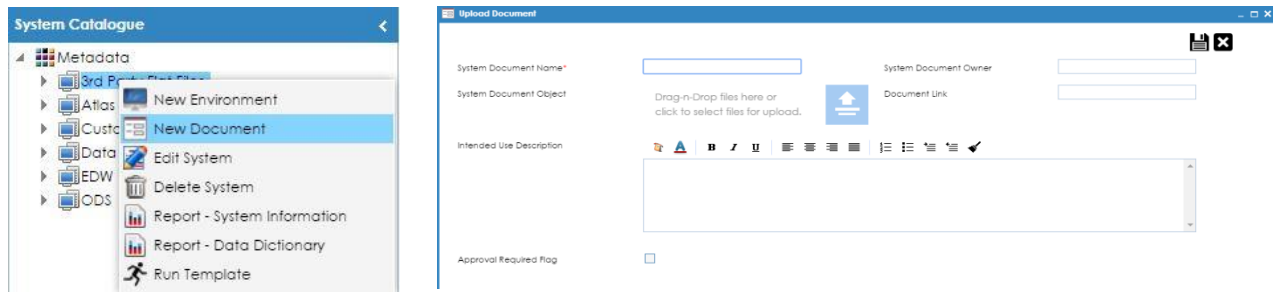
## Update System Details

1. Right Click on a System (e.g. EDW) and select the "Edit System" option.
2. Enter the required details and click the "Save" button. The changes are successfully updated.



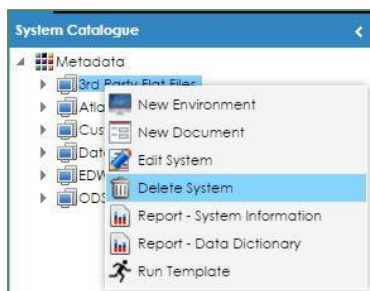
## Upload document at System Level:

1. Right click on a System (e.g. 3<sup>rd</sup> Party flat files) and select the "New Document" option
2. Enter the required details, drag and drop the required document for upload and click on save button.



## Delete System

1. Right click on a System (e.g. 3<sup>rd</sup> Party flat files) and select the "Delete System" option



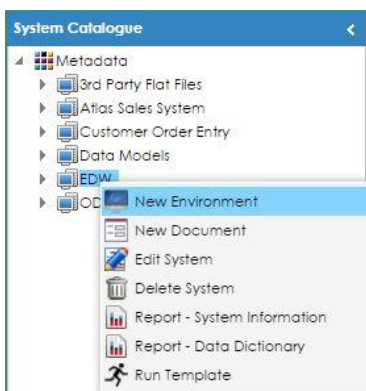
2. System cannot be deleted if it has associated environments. If that is the case, the environments need to be first deleted and then the system can be deleted. If a System has no associated environments, it can be deleted directly.



## Defining Environments:

### Creating New Environment

1. Right click on a System in the System Catalogue tree and click "**New Environment**"



2. Enter the "**Environment Name**" and "**Environment Type**" (mandatory), select the "Database Type" and enter the required connectivity parameters and click the "Save" icon. New Environment is successfully created.

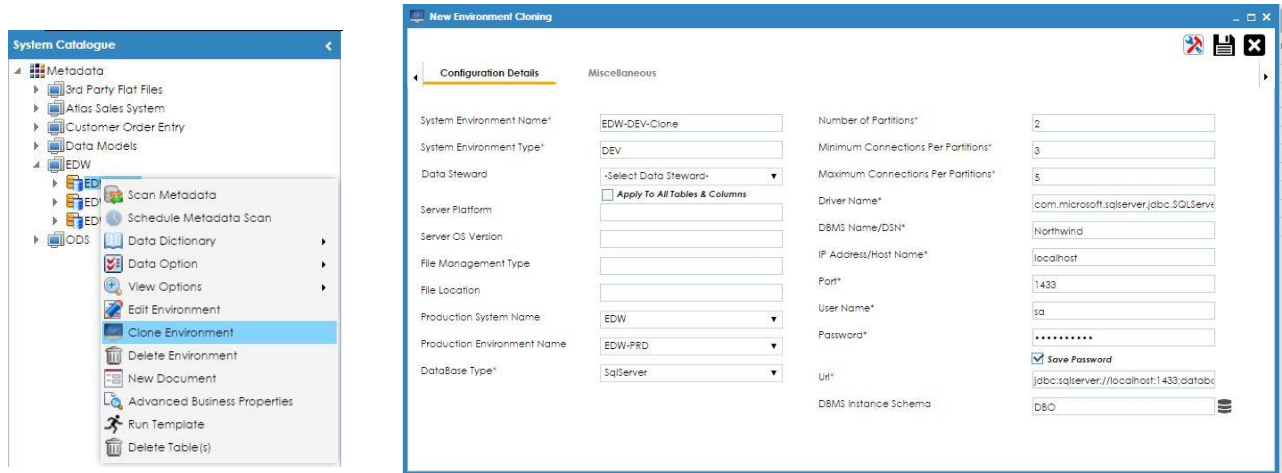
The screenshot shows the 'New Environment' dialog box with the 'Configuration Details' tab selected. The dialog has a 'Cancel' button in the top right corner. The 'Configuration Details' tab contains the following fields and options:

- System Environment Name\*
- System Environment Type\*
- Data Steward: -Select Data Steward- (dropdown menu)
- ☐ Apply To All Tables & Columns
- Server Platform
- Server OS Version
- File Management Type
- File Location
- Production System Name: Choose Production System (dropdown menu)
- Production Environment Name
- DataBase Type\*: -Select DataBase- (dropdown menu)

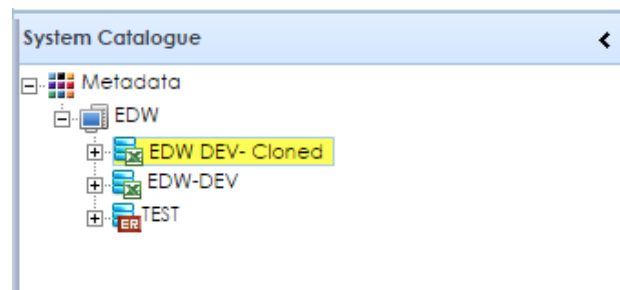
A large blue box on the right side of the dialog contains the text: "Please Select DataBase Type".

## Clone Environment Details

1. Right Click on an Environment (e.g. EDW-DEV) and select the "Clone Environment" option.
2. New Environment Cloning window displays, you can edit the environment name if required and click the "Save" icon. The environment is cloned successfully with the connection parameters

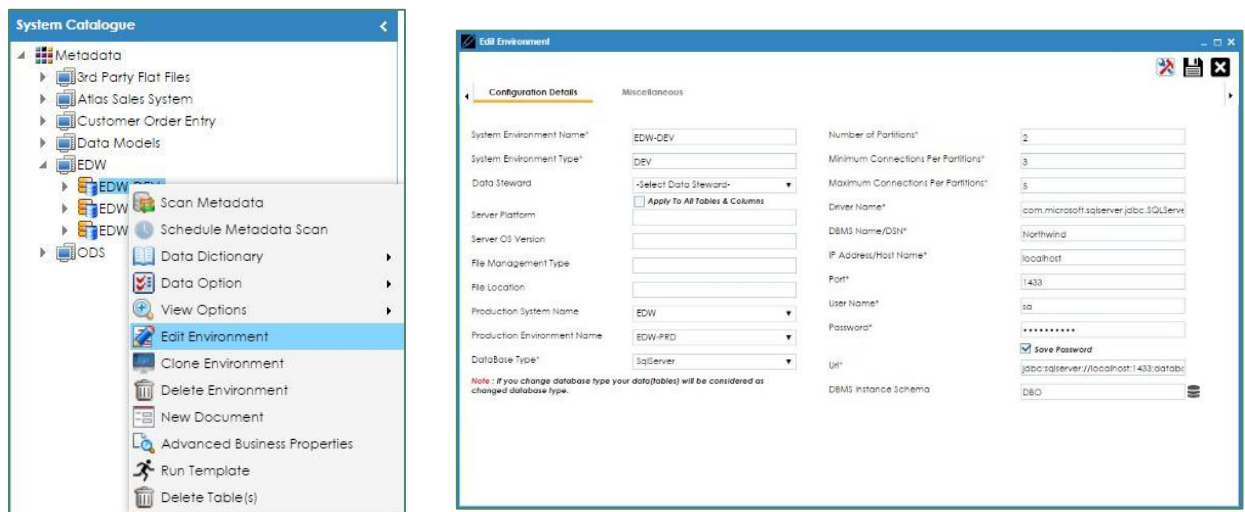


3. Cloned environment is displayed under the System Catalogue as below



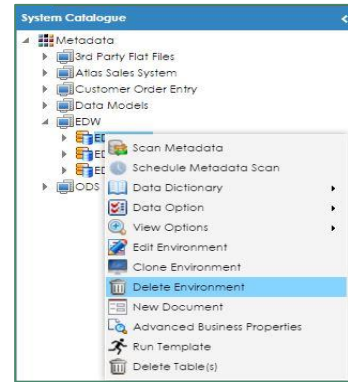
## Update Environment Details

1. Right Click on an Environment (e.g. EDW-DEV) and select the "Edit Environment" option.
2. Enter the required details and click the "Save" icon. The changes are successfully updated.



## Delete Environment

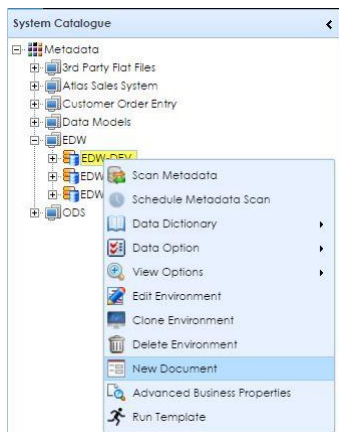
1. Right click on an Environment (e.g. EDW-DEV) and select the "Delete Environment" option



2. The application displays a confirmation message to the user and upon confirmation the environment is successfully deleted.

## Upload document at Environment Level:

1. Right click on an Environment (e.g. EDW-DEV) and select the "New Document" option
2. Enter the required details, drag and drop the required document for upload and click on save button.

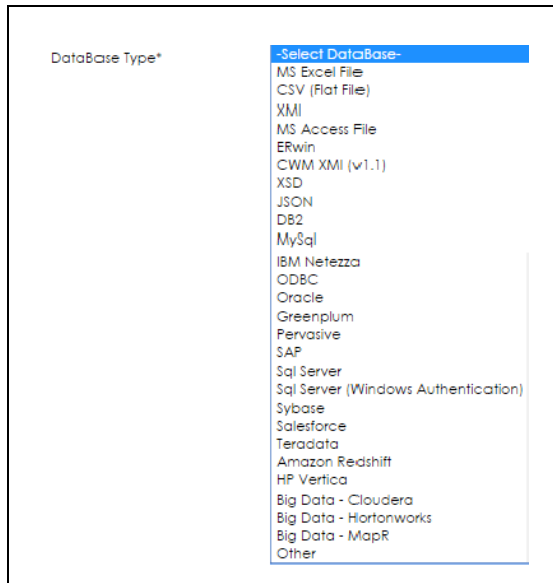


## Documenting Data Steward while scanning metadata:

Ability to document the Data Steward at the System/Env/Table/Column levels in Metadata Manager Module.

### Selecting Database Type:

The Database Type dropdown contains options to connect to various Databases, Data models, Flat Files etc. Select the appropriate option and enter the other mandatory fields. Other mandatory fields i.e. Connectivity parameters are displayed if a Database is selected from the drop down.



If you wish to scan metadata from any other databases or customized databases (having JDBC or ODBC connectors) which is not present in the above drop-down, select the option "Others" and provide the required connection parameters.

The following section explains how to create environments for a Database, Data Model, and Flat File etc.

### Setting Up an Environment and Scanning Metadata for a Database

When creating an Environment, select the appropriate Database option from the "**Database Type**" drop down. Options are available to connect to a range of databases like **SQL SERVER, ORACLE (RAC / Service name), TERADATA, DB2, Netezza, Salesforce, SYBASE, etc.**

This section takes the example of a SQL SERVER database.


#### Providing the Connectivity Parameters


Select the "Database Type" option as "**SqlServer**". Upon selecting the database type, additional fields are displayed which form part of the connection parameters to the selected database. Enter the following connectivity parameters.

1. IP ADDRESS/HOST NAME
2. PORT NUMBER (default port is provided upon selection of database. This number can be changed if an alternate port number is being used).
3. DBMS Name
4. DBMS Schema (use this option to select multiple or narrow down to single schema)
5. User Name to connect to the database
6. Password to connect to the database

The URL field is automatically built based on the parameters entered.

Select the database Objects that need to be imported (e.g. Tables, Views, and Synonyms) by selecting/deselecting the checkboxes in the "Import Metadata options" field.

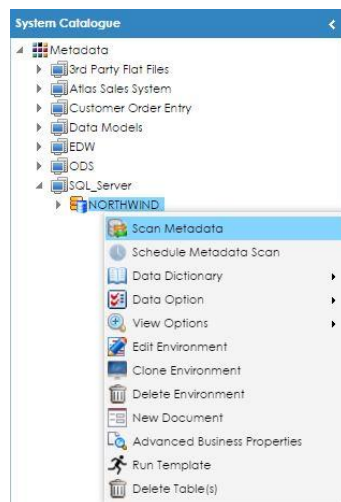
**Note:** Use the DB schema  icon to pre-select multiple schemas at one go, so that metadata associated to multiple schemas can be fetched.

Use the "Test Connection" icon  to test for successful connectivity to the database prior to saving the environment details. Upon successful connection to the database, click on **"Save & continue"** icon to continue with scanning the Metadata.

**(Or)** you can Right click on the environment and Click on Scan Metadata to scan the database objects.

## Scanning the Metadata

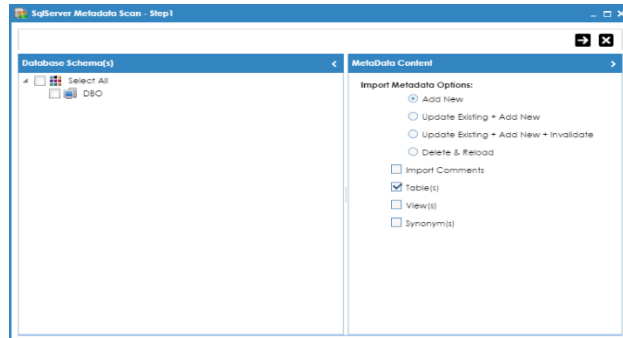
Once the environment has been created and successful connectivity to the database is established, right click on an Environment e.g. "Northwind" in the "System Catalogue" tree and select the "Scan Metadata" option.



The Metadata Scan Wizard window as shown below to scan database objects displays.

### Wizard Screen 1 - Select Metadata options screen pops-up,

- Select metadata options such as Tables, Views, Synonyms
- Under DBMS Instance schema, select the schemas that are retrieved from the configured environment - allowing user to edit (select/deselect) multiple schemas to be imported (e.g. All, Single or Multiple)
- Click on Next to proceed to "Import Metadata" window



### Options to Import metadata

1. **Add New** – This option adds only new objects to the existing object list. Existing metadata is not refreshed.
2. **Update Existing and Add New** – This option adds new objects to the existing list and at the same time the existing metadata is also refreshed.
3. **Update Existing, Add New and Invalidate** – Adding to Update existing and add new, here you also have an option to uncheck or invalidate table/column during the scanning process.
4. **Delete & Reload** – this option deletes all existing metadata and scans only the new objects that have been selected.

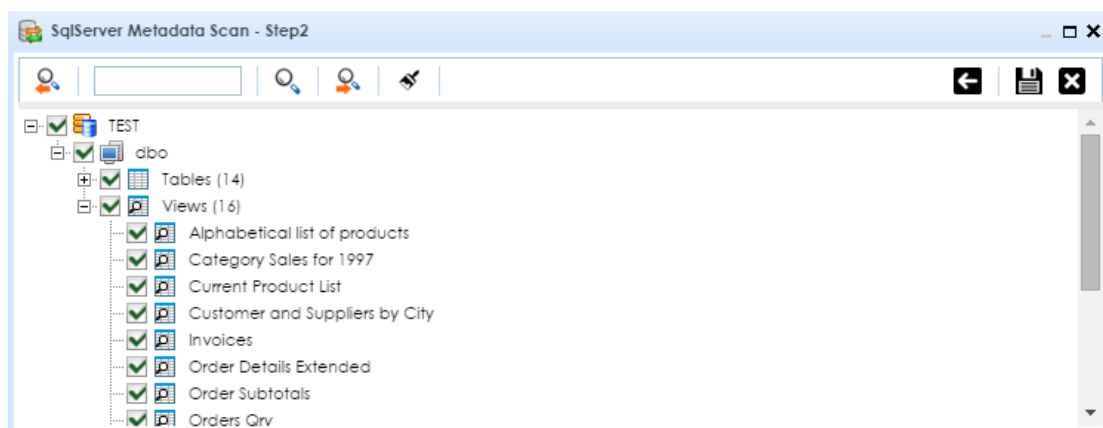
On the metadata scan window, an additional checkbox is provide to scan table/column comments from supported databases. If your database has the comments available and these need to be scanned as part of the scanning process, select the "**Import Comments**" checkbox.


### Wizard Screen 2 - Scan Environment/Upload Metadata

- Pulls-up a window with previously selected objects such as Tables, Views, Synonyms with associated metadata objects in below format, providing the user flexibility to select/deselect the metadata objects fetched from Data Source

SCHEMA > TABLES; SCHEMA > VIEWS; SCHEMA > SYNONYMS


- For all available Objects (Schemas/Table/Views etc.) select/deselect check-box option is provided which allows user to select multiple objects to be imported (e.g. All, Single or Multiple schemas/tables/views/synonyms)



Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

Search can be performed all across the available objects within the tree, as seen in the top frame:



Type the search criteria within the text box and click on  icon to search through all the objects. Use the Find Next or Find previous icon to move the search results forward or backward within the tree.

Normally Read-only permissions are required to scan metadata from a Database.

- **Create Session** permission is enough to scan metadata from Oracle
- **Data Reader** permission is enough to scan metadata from SQL

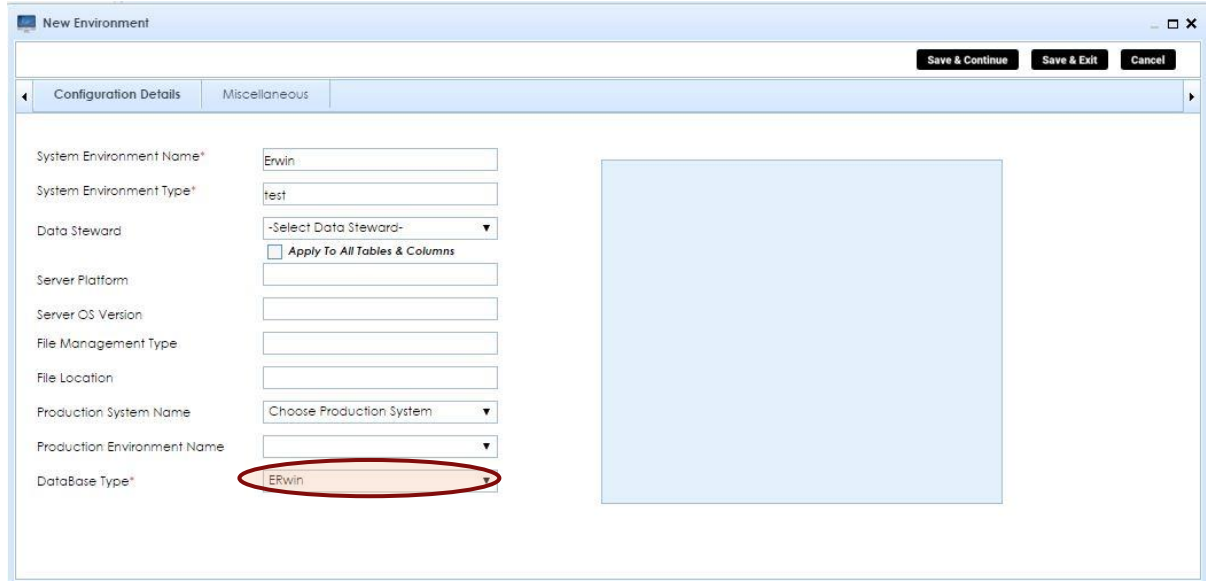
## **Setting up an Environment and Scanning Metadata for a Data Model e.g. Erwin**

When creating an Environment, select the appropriate Database option from the "**Database Type**" drop down. Options are available to connect to various data models like ERWIN, ERStudio etc.

This section takes the example of an ERWIN data model. **Click here** on how to set up an environment for other data models.

### **Providing the Connectivity Parameters**

Select the "Database Type" option as "Erwin". Save the environment details.

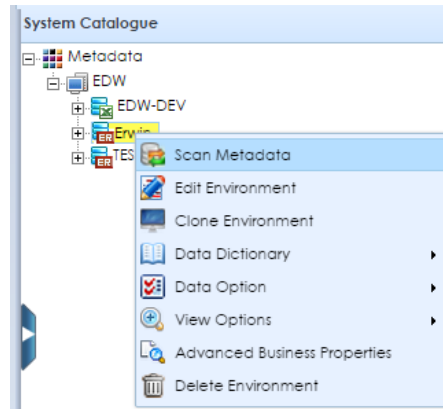


Click on "**Save & continue**" icon to continue with scanning the Metadata by importing the xml files.

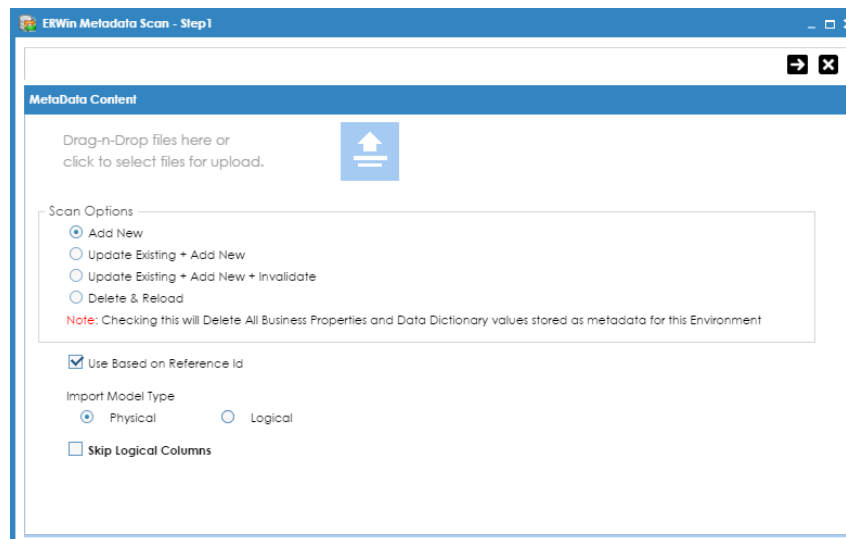
**(Or)** you can Right click on the environment and Click on Scan Metadata to scan the metadata.

## Scanning the Metadata

Once the environment has been created right click on an Environment e.g. "Erwin" in the "System Catalogue" tree and select the "Scan Metadata" option.



**Wizard Screen 1** - Select Metadata options screen pops-up,



The metadata window to scan ERWin model displays. In this window, click the "Choose File" option and select the ERWin data model which is in ".xml" format e.g. "EDW\_Landing.xml".

**Note:** AMM supports scanning ERWin metadata models using the XML layer. To import the ERWin model into AMM, go into your ERWin modeler, export the data model into ".xml" format and upload this ".xml" file into AMM.

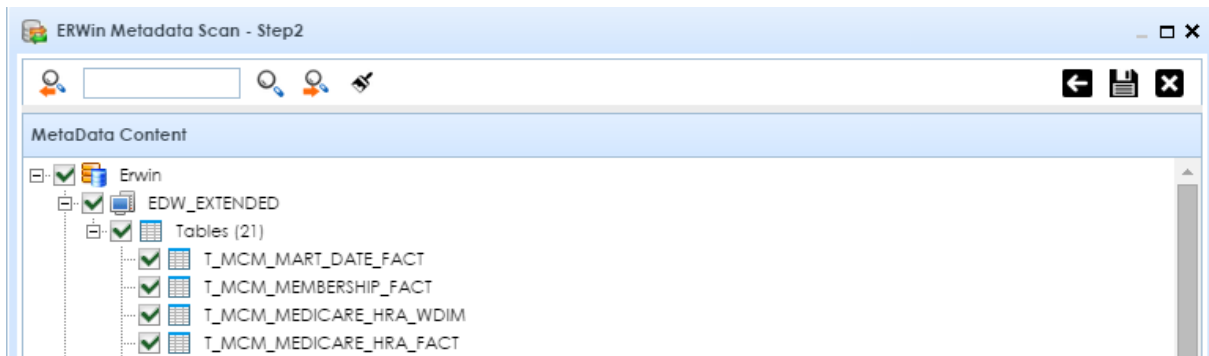
### Options to Import metadata


1. **Add New** – this options add new metadata and scans all the objects that have been selected.
2. **Update existing and Add New** – When new tables are added to the existing metadata list. This option will preserve all your existing metadata while importing the new metadata set.
3. **Update Existing, Add New and Invalidate** – Adding to Update existing and add new, here you also have an option to uncheck or invalidate table/column during the scanning process.
4. **Delete & Reload Environment** – this option deletes all existing metadata and scans only the new objects that have been selected.
5. Import Model Type – Physical Order or Logical Order.
6. Skip Logical Columns



## Wizard Screen 2 - Scan Environment/Upload Metadata


- For all available Objects (Schemas/Table etc) select/deselect check-box option provided which allows user to select multiple objects to be imported (ex. All, Single or Multiple schemas/tables)



Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

Search can be performed all across the available objects within the tree, as seen in the top frame:



Type the search criteria within the text box and click on  icon to search through all the objects. Use the Find Next or Find previous icon to move the search results forward or backward within the tree.

## Setting Up an Environment and Scanning Metadata for a SAP System

When creating an Environment, select the appropriate Database option from the "**Database Type**" drop down. Options are available to connect to a range of databases. This section takes the example of a SAP database.

[Click here](#) on how to set up an environment for other databases.

## Providing the Connectivity Parameters

Select the "Database Type" option as "**SAP**". Upon selecting the database type, additional fields are displayed which form part of the connection parameters to the selected database as shown below.

Enter the following connectivity parameters

1. IP ADDRESS/HOST NAME
2. User Name to connect to the database
3. Password to connect to the database
4. System Number
5. Client
6. Delimiter: Pre-loaded delimiters for Tables separation in CSV file
7. CSV File: Upload CSV file containing Tables/Views to be scanned
8. Number of Partitions
9. Minimum Connections Per Partitions
10. Maximum Connections Per Partitions

Use the "Test Connection" icon to test for successful connectivity to the database prior to saving the environment details.

- Upload multiple Tables using CSV file

Use CSV File (Upload or Drag-n-Drop csv file) with Table names whose metadata need to be scanned. CSV file should contain values like; Table1, Table2, Table3 (Delimiter should be specified in Delimiter section)

- Upload Tables manually

Once connection successfully tested and saved, use Scan metadata option as explained below, to select each individual table whose metadata need to be scanned.

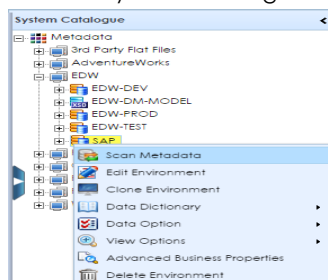
Upon successful connection to the database, click on **"Save & continue"** icon to continue with scanning the Metadata **(Or)** you can Right click on the environment and Click on Scan Metadata to scan the database objects.

**IMPORTANT:** SAP JCO jar is not bundled with the solution and needs to be placed as mentioned below:

- **Stop Tomcat Service**
- **Copy sapjco.jar into <TOMCAT\_HOME>\Webapps\<MappingManager>\WEB-INF\lib folder and Start Tomcat service.**
- **Copy sapjco3.dll into C:\Windows\System32 folder and restart the system.**

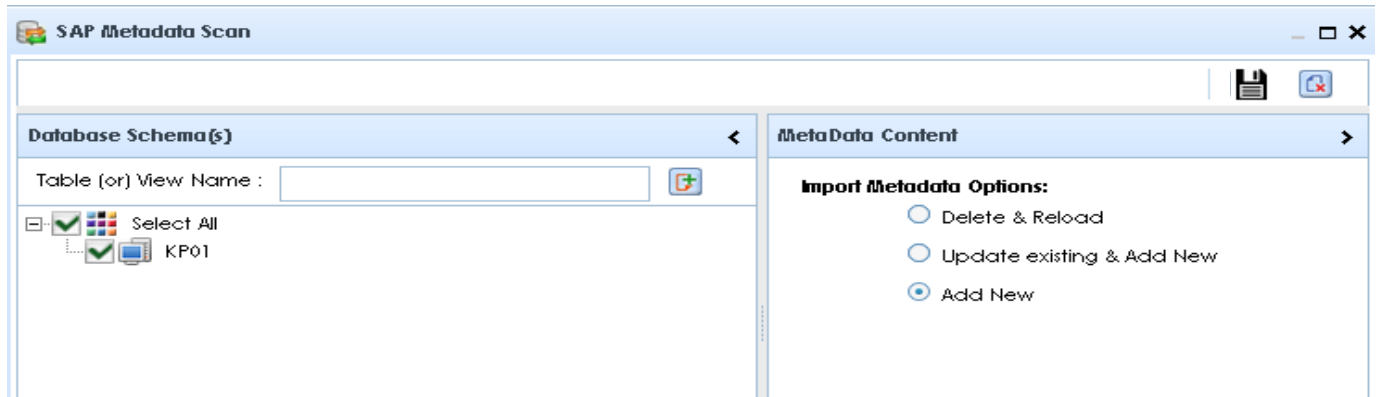
### Scanning the Metadata

Once the environment has been created and successful connectivity to the database is established, right click on an Environment e.g. "SAP" in the "System Catalogue" tree and select the "Scan Metadata" option.




The Metadata Scan Wizard window to scan database objects displays.

- Add Tables/Views individually for which metadata need to be scanned
- Under Database schema(s), select the schemas that are retrieved from the configured environment or manually type - allowing user to edit (select/deselect) multiple schemas to be imported (eg All, Single or Multiple)



#### Options to Import metadata

1. **Delete & Reload** – this option deletes all existing metadata and scans only the new objects that have been selected.
2. **Update Existing and Add New** – this option adds new objects to the existing list and at the same time the existing metadata is also refreshed.
3. **Add New** – this options adds only new objects to the existing object list. Existing metadata is not refreshed.

Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

### **Setting Up an Environment and Scanning Metadata for a Big Data System**

When creating an Environment, select the appropriate Database option from the “**Database Type**” drop down. Options are available to connect to a range of databases. This section takes the example of a “**Big Data – Cloudera, Horton Networks and MapR**” databases.


[Click here](#) on how to set up an environment for other databases.

#### **Providing the Connectivity Parameters**

Select the “Database Type” option as “**Big Data- Cloud era**”. Upon selecting the database type, additional fields are displayed which form part of the connection parameters to the selected database.

Enter the following connectivity parameters

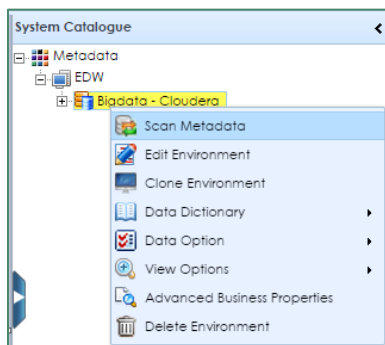
1. Number of Partitions
2. Minimum Connections Per Partitions
3. Maximum Connections Per Partitions
4. Driver Name
5. DBMS/DSN Name
6. IP Address/Host Name
7. Port
8. User Name
9. Pass Word
10. URL
11. DBMS Instant Schema (use this option to select multiple or narrow down to single schema)

**Note:** Use the DB schema  icon to pre-select multiple schemas at one go, so that metadata associated to multiple schemas can be fetched.

Use the **"Test Connection"** icon to test for successful connectivity to the database prior to saving the environment details. Upon successful connection to the database, click on **"Save & continue"** icon to continue with scanning the Metadata **(Or)** you can Right click on the environment and Click on Scan Metadata to scan the database objects.

### Scanning the Metadata

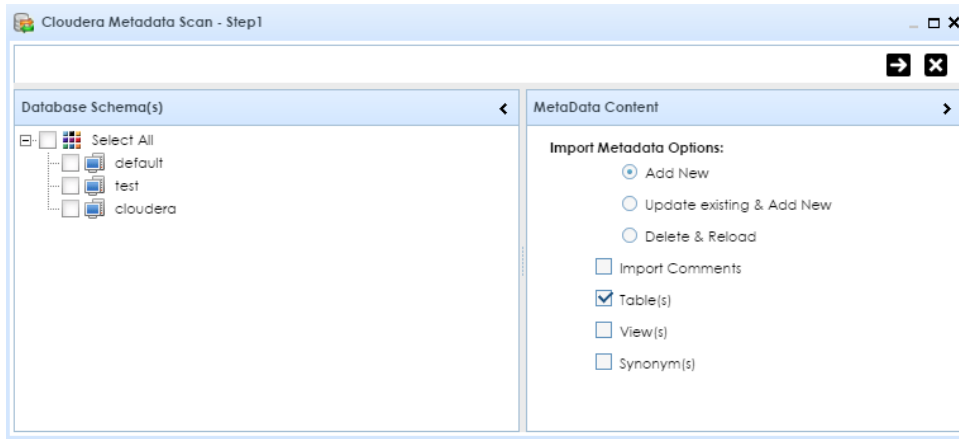
Once the environment has been created and successful connectivity to the database is established, right click on an Environment e.g. **"Bigdata-Cloudera"** in the "System Catalogue" tree and select the "Scan Metadata" option.



The Metadata Scan Wizard window to scan database objects displays.

**Wizard Screen 1** - Select Metadata options screen pops-up,

- Select metadata options such as Tables, Views, Synonyms
- Under DBMS Instance schema, select the schemas that are retrieved from the configured environment - allowing user to edit (select/deselect) multiple schemas to be imported (eg All, Single or Multiple)
- Click on Next to proceed to "Import Metadata" window



### Options to Import metadata

1. **Add New** – this options adds only new objects to the existing object list. Existing metadata is not refreshed.
2. **Update Existing and Add New** – this option adds new objects to the existing list and at the same time the existing metadata is also refreshed.
3. **Delete & Reload** – this option deletes all existing metadata and scans only the new objects that have been selected.
4. **Import Comments** - Importing Table and Column comments from Database

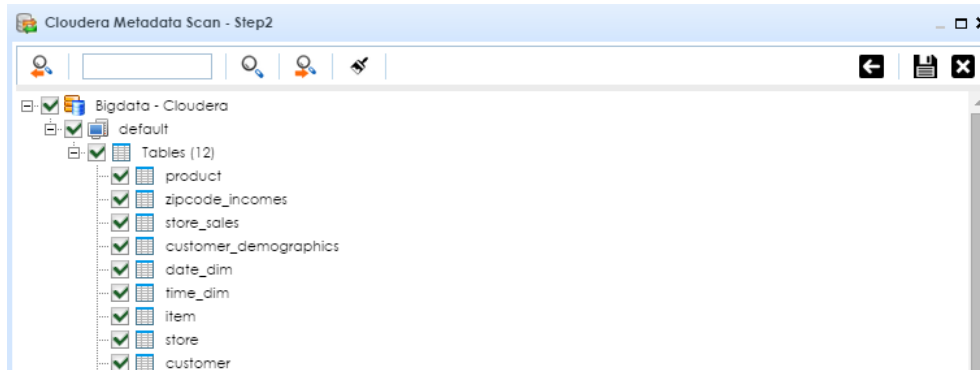
On the metadata scan window, an additional checkbox is provide to scan table/column comments from supported databases. If your database has the comments available and these need to be scanned as part of the scanning process, select the "**Import Comments**" checkbox. Note that this option is disabled by default.


### Wizard Screen 2 - Scan Environment/Upload Metadata

- Pulls-up a window with previously selected objects such as Tables, Views, Synonyms with associated metadata objects in below format, providing the user flexibility to select/deselect the metadata objects fetched from Data Source

SCHEMA > TABLES; SCHEMA > VIEWS; SCHEMA > SYNONYMS


- For all available Objects (Schemas/Table/Views etc.) select/deselect check-box option is provided which allows user to select multiple objects to be imported (e.g. All, Single or Multiple schemas/tables/views/synonyms)



Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

Search can be performed all across the available objects within the tree, as seen in the top frame:



Type the search criteria within the text box and click on  icon to search through all the objects. Use the Find Next or Find previous icon to move the search results forward or backward within the tree.

**NOTE:** Similarly you can scan from **"Hortonworks"** and **"MapR"** databases by selecting the corresponding database from the DataBase Type dropdown.

### **Big Data – Hortonworks:**

 A screenshot of the 'New Environment' configuration window. The 'Configuration Details' tab is active. The 'System Environment Name' is 'Big Data- Hortonworks'. The 'DataBase Type' is 'Big Data - Hortonworks'. The 'Server Version' is 'Hive Server'. The 'Driver Name' is 'org.apache.hadoop.hive.jdbc.HiveDr'. The 'Port' is '10000'. The 'User Name' and 'Password' fields are empty. The 'Save Password' checkbox is checked. The 'Uri' is 'jdbc:hive://:10000/'. The 'DBMS Instance Schema' is empty.

### **Big Data – MapR:**

 A screenshot of the 'New Environment' configuration window. The 'Configuration Details' tab is active. The 'System Environment Name' is 'Big Data- MapR'. The 'DataBase Type' is 'Big Data - MapR'. The 'Server Version' is 'Hive Server'. The 'Driver Name' is 'org.apache.hadoop.hive.jdbc.HiveDr'. The 'Port' is '10000'. The 'User Name' and 'Password' fields are empty. The 'Save Password' checkbox is checked. The 'Uri' is 'jdbc:hive://:10000/'. The 'DBMS Instance Schema' is empty.

## Setting Up an Environment and Scanning Metadata for Amazon Redshift

When creating an Environment, select the appropriate Database option from the “**Database Type**” drop down. Options are available to connect to a range of databases. This section takes the example of an “**Amazon- Redshift**” database.


[Click here](#) on how to set up an environment for other databases.

### Providing the Connectivity Parameters

Select the “Database Type” option as “**Amazon-Redshift**”. Upon selecting the database type, additional fields are displayed which form part of the connection parameters to the selected database.

Enter the following connectivity parameters

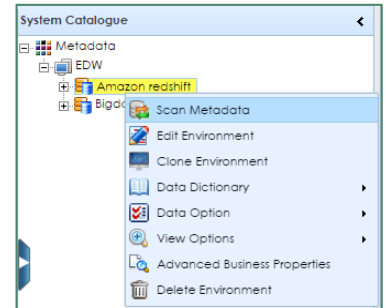
1. Number of Partitions
2. Minimum Connections Per Partitions
3. Maximum Connections Per Partitions
4. Driver Name
5. DBMS/DSN Name
6. IP Address/Host Name
7. Port
8. User Name
9. Pass Word
10. URL
11. DBMS Instant Schema (use this option to select multiple or narrow down to single schema)

**Note:** Use the DB schema  icon to pre-select multiple schemas at one go, so that metadata associated to multiple schemas can be fetched.

Use the “**Test Connection**” icon to test for successful connectivity to the database prior to saving the environment details. Upon successful connection to the database, click on “**Save & continue**” icon to continue with scanning the Metadata (**Or**) you can Right click on the environment and Click on Scan Metadata to scan the database objects.

## Scanning the Metadata

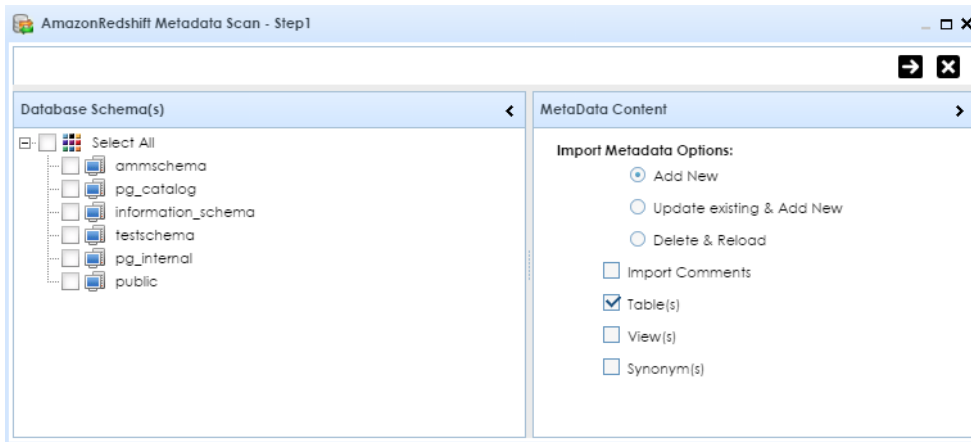
Once the environment has been created and successful connectivity to the database is established, right click on an Environment e.g. **"Amazon-Redshift"** in the "System Catalogue" tree and select the "Scan Metadata" option.



The Metadata Scan Wizard window to scan database objects displays.

**Wizard Screen 1** - Select Metadata options screen pops-up,

- Select metadata options such as Tables, Views, Synonyms
- Under DBMS Instance schema, select the schemas that are retrieved from the configured environment - allowing user to edit (select/deselect) multiple schemas to be imported (e.g. All, Single or Multiple)
- Click on Next to proceed to "Import Metadata" window



### Options to Import metadata

1. **Add New** – this options adds only new objects to the existing object list. Existing metadata is not refreshed.
2. **Update Existing and Add New** – this option adds new objects to the existing list and at the same time the existing metadata is also refreshed.
3. **Delete & Reload** – this option deletes all existing metadata and scans only the new objects that have been selected.
4. **Import Comments** - Importing Table and Column comments from Database

On the metadata scan window, an additional checkbox is provide to scan table/column comments from supported databases. If your database has the comments available and these need to be scanned as part of the scanning process, select the **"Import Comments"** checkbox. Note that this option is disabled by default.

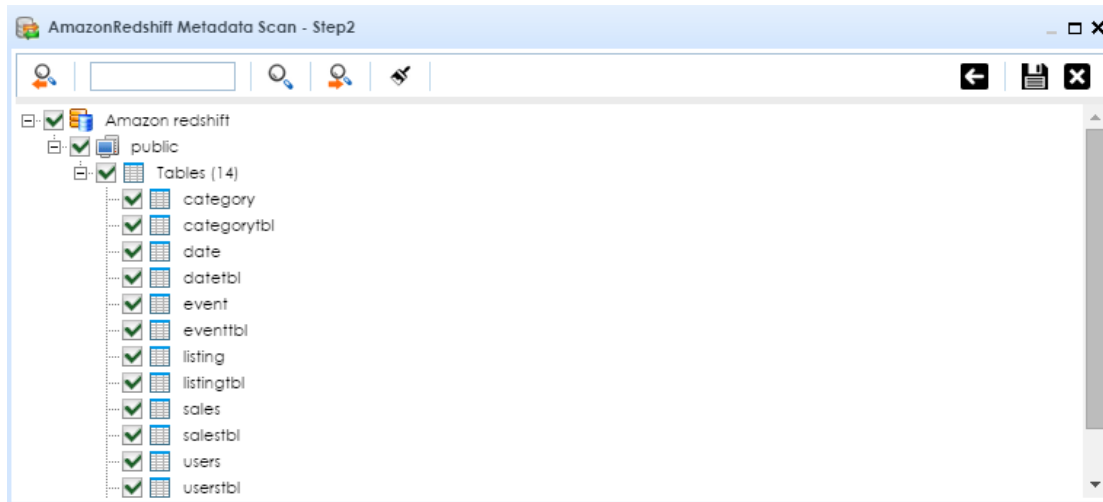
**Wizard Screen 2** - Scan Environment/Upload Metadata


- Pulls-up a window with previously selected objects such as Tables, Views, Synonyms with associated metadata objects in below format, providing the user flexibility to select/deselect the metadata objects fetched from Data Source

SCHEMA > TABLES; SCHEMA > VIEWS; SCHEMA > SYNONYMS




- For all available Objects (Schemas/Table/Views etc) select/deselect check-box option is provided which allows user to select multiple objects to be imported (eg All, Single or Multiple schemas/tables/views/synonyms)



Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

Search can be performed all across the available objects within the tree, as seen in the top frame:



Type the search criteria within the text box and click on  icon to search through all the objects. Use the Find Next or Find previous icon to move the search results forward or backward within the tree.

## **Setting Up an Environment and Scanning Metadata for a IBM Netezza**

When creating an Environment, select the appropriate Database option from the "**Database Type**" drop down. Options are available to connect to a range of databases. This section takes the example of an "**IBM Netezza**" database.

[Click here](#) on how to set up an environment for other databases.

### **Providing the Connectivity Parameters**


Select the "Database Type" option as "**IBM Netezza**". Upon selecting the database type, additional fields are displayed which form part of the connection parameters to the selected database.

Enter the following connectivity parameters

1. Number of Partitions
2. Minimum Connections Per Partitions
3. Maximum Connections Per Partitions
4. Driver Name
5. DBMS/DSN Name
6. IP Address/Host Name
7. Port
8. User Name
9. Pass Word

10. URL

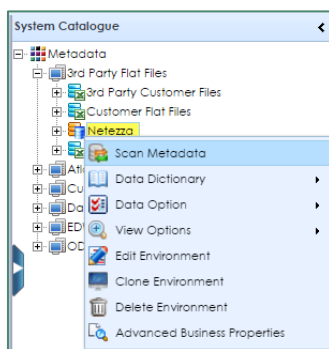
11. DBMS Instant Schema (use this option to select multiple or narrow down to single schema)

**Note:** Use the DB schema  to pre-select multiple schemas at one go, so that metadata associated to multiple schemas can be fetched.

Use the **"Test Connection"** icon to test for successful connectivity to the database prior to saving the environment details. Upon successful connection to the database, click on **"Save & continue"** icon to continue with scanning the Metadata **(Or)** you can Right click on the environment and Click on Scan Metadata to scan the database objects.

### Scanning the Metadata

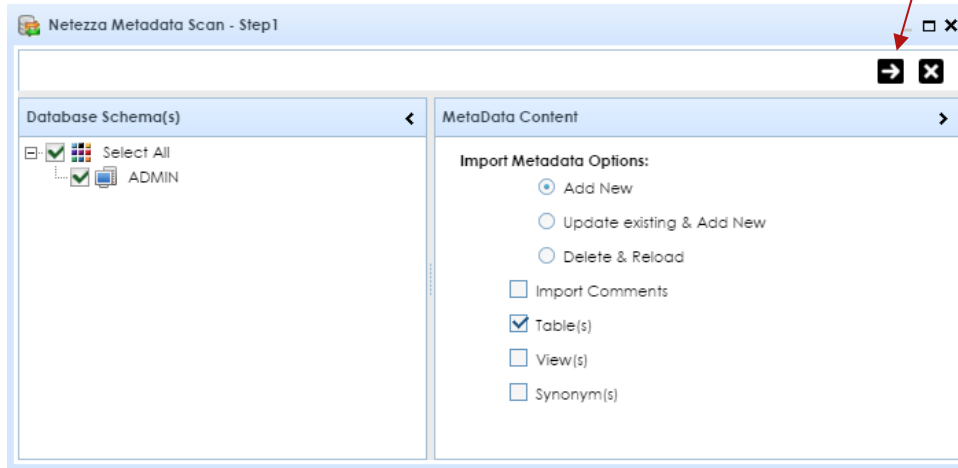
Once the environment has been created and successful connectivity to the database is established, right click on an Environment e.g. **"Netezza"** in the "System Catalogue" tree and select the "Scan Metadata" option.



The Metadata Scan Wizard window to scan database objects displays.

**Wizard Screen 1** - Select Metadata options screen pops-up,

- Select metadata options such as Tables, Views, Synonyms
- Under DBMS Instance schema, select the schemas that are retrieved from the configured environment - allowing user to edit (select/deselect) multiple schemas to be imported (e.g. All, Single or Multiple)
- Click on Next to proceed to "Import Metadata" window



### Options to Import metadata

5. **Add New** – this options adds only new objects to the existing object list. Existing metadata is not refreshed.
6. **Update Existing and Add New** – this option adds new objects to the existing list and at the same time the existing metadata is also refreshed.
7. **Delete & Reload** – this option deletes all existing metadata and scans only the new objects that have been selected.
8. **Import Comments** - Importing Table and Column comments from Database

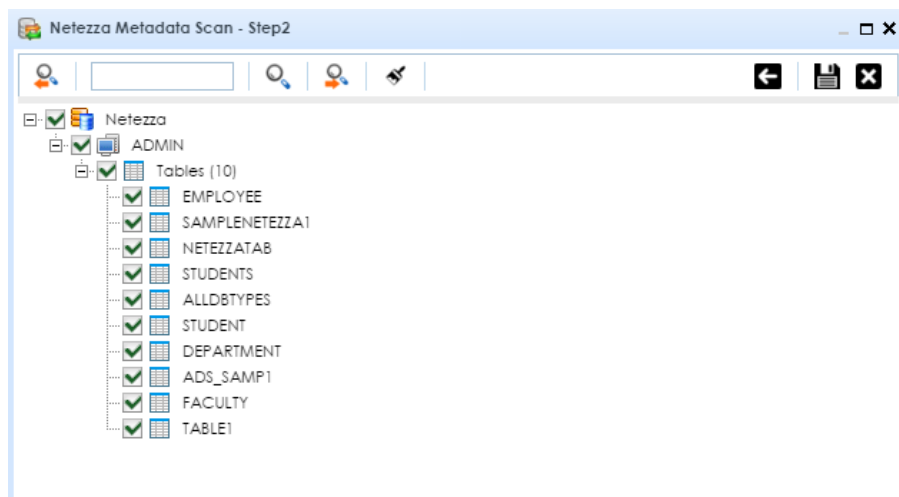
On the metadata scan window, an additional checkbox is provide to scan table/column comments from supported databases. If your database has the comments available and these need to be scanned as part of the scanning process, select the "**Import Comments**" checkbox. Note that this option is disabled by default.


### Wizard Screen 2 - Scan Environment/Upload Metadata

- Pulls-up a window with previously selected objects such as Tables, Views, Synonyms with associated metadata objects in below format, providing the user flexibility to select/deselect the metadata objects fetched from Data Source

SCHEMA > TABLES; SCHEMA > VIEWS; SCHEMA > SYNONYMS

- For all available Objects (Schemas/Table/Views etc) select/deselect check-box option is provided which allows user to select multiple objects to be imported (eg All, Single or Multiple schemas/tables/views/synonyms)



Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

## Setting Up an Environment and Scanning Metadata from Salesforce

When creating an Environment, select the appropriate Database option from the “**Database Type**” drop down. Options are available to connect to a range of databases. This section takes the example of “**Salesforce**” database.

[Click here](#) on how to set up an environment for other databases.

### Providing the Connectivity Parameters

Select the “Database Type” option as “**Salesforce**”. Upon selecting the database type, additional fields are displayed which form part of the connection parameters to the selected database.

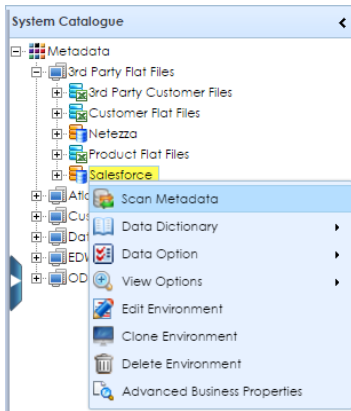
Enter the following connectivity parameters

1. Environment type
2. User Name to connect to the database
3. Password to connect to the database
4. Number of Partitions
5. Maximum Number of Connections Per Partitions
6. Minimum Number of Connections Per Partitions

Use the “**Test Connection**” icon to test for successful connectivity to the database prior to saving the environment details. Upon successful connection to the database, click on “**Save & continue**” icon to continue with scanning the Metadata (**Or**) you can Right click on the environment and Click on Scan Metadata to scan the database objects.

### Scanning the Metadata

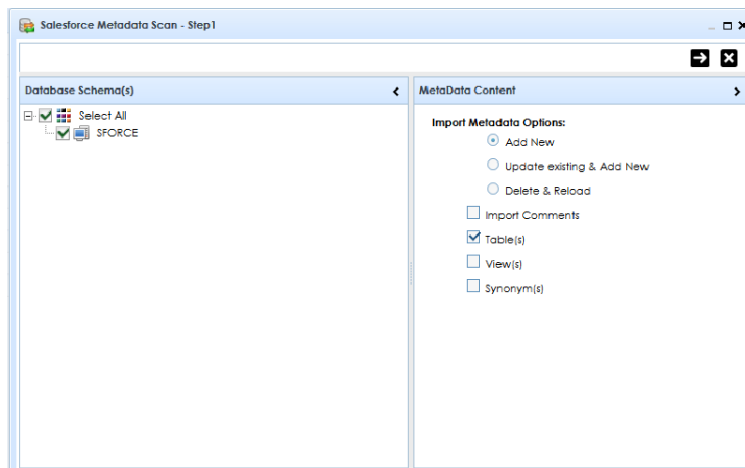
Once the environment has been created and successful connectivity to the database is established, right click on an Environment e.g. “**Salesforce**” in the “System Catalogue” tree and select the “Scan Metadata” option.



The Metadata Scan Wizard window to scan database objects displays.

**Wizard Screen 1** - Select Metadata options screen pops-up,

- Select metadata options such as Tables, Views, Synonyms
- Under DBMS Instance schema, select the schemas that are retrieved from the configured environment - allowing user to edit (select/deselect) multiple schemas to be imported (e.g. All, Single or Multiple)
- Click on Next to proceed to "Import Metadata" window



#### Options to Import metadata

9. **Add New** – this options adds only new objects to the existing object list. Existing metadata is not refreshed.
10. **Update Existing and Add New** – this option adds new objects to the existing list and at the same time the existing metadata is also refreshed.
11. **Delete & Reload** – this option deletes all existing metadata and scans only the new objects that have been selected.
12. **Import Comments** - Importing Table and Column comments from Database

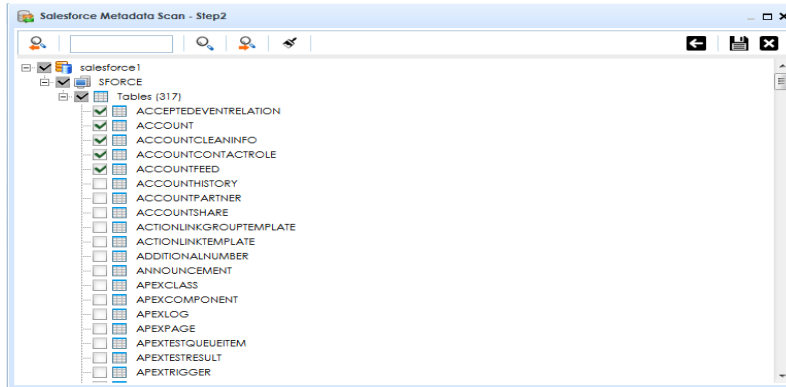
On the metadata scan window, an additional checkbox is provide to scan table/column comments from supported databases. If your database has the comments available and these need to be scanned as part of the scanning process, select the "**Import Comments**" checkbox. Note that this option is disabled by default.

## Wizard Screen 2 - Scan Environment/Upload Metadata

- Pulls-up a window with previously selected objects such as Tables, Views, Synonyms with associated metadata objects in below format, providing the user flexibility to select/deselect the metadata objects fetched from Data Source

SCHEMA > TABLES; SCHEMA > VIEWS; SCHEMA > SYNONYMS

- For all available Objects (Schemas/Table/Views etc) select/deselect check-box option is provided which allows user to select multiple objects to be imported (eg All, Single or Multiple schemas/tables/views/synonyms)



Click the save icon when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

## Setting up an Environment and Scanning Metadata for a File e.g. Excel, CSV and JSON Files etc

If metadata is to be scanned out of Excel files, CSV files, JSON files, Flat Files, other file types etc., when creating an Environment, select the appropriate Database option as "MS Excel" (default option) from the **"Database Type"** drop down.

This section takes the example of an **Excel, CSV and JSON files**. [Click here](#) on how to set up an environment for other file systems.

### Providing the Connectivity Parameters – "MS Excel"

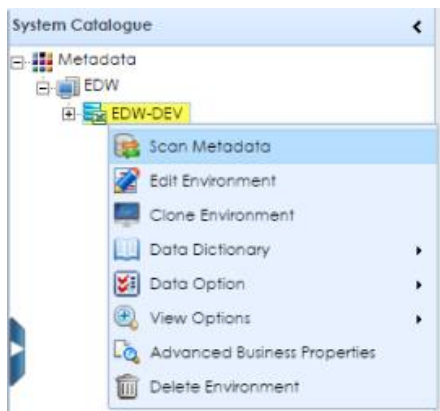
Select the "Database Type" option as "MS Excel".

Click on **"Save & continue"** icon to continue with scanning the Metadata **(Or)** Click on "Save & Exit" icon, Right click on the environment and Click on Scan Metadata to scan the Metadata.

## Scanning the Metadata

Once the environment has been created right click on an Environment e.g. "EDW-DEV" in the "System Catalogue" tree and select the "Scan Metadata" option.

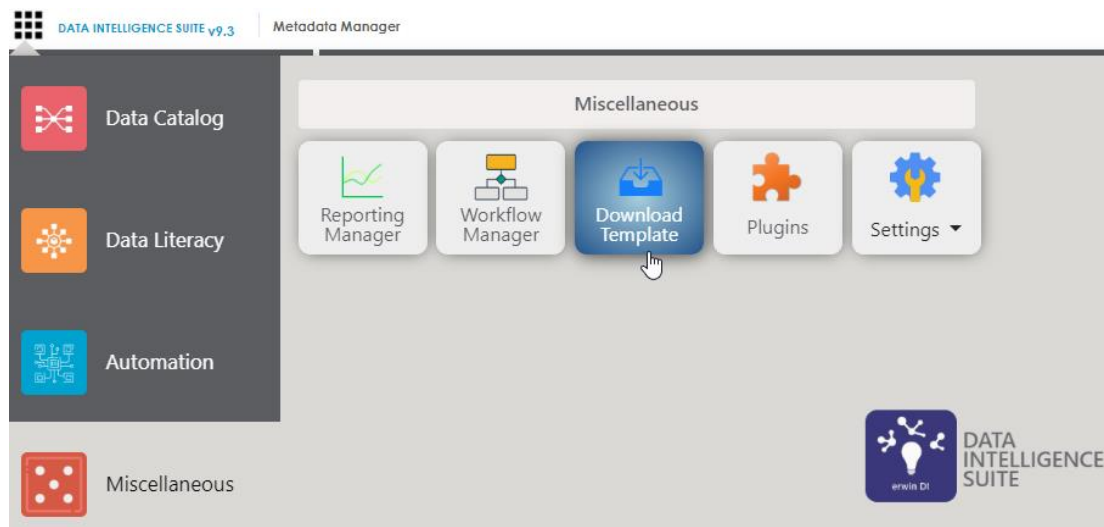
**Important Note:** Use the "Scan Metadata" option in case of scanning new metadata.

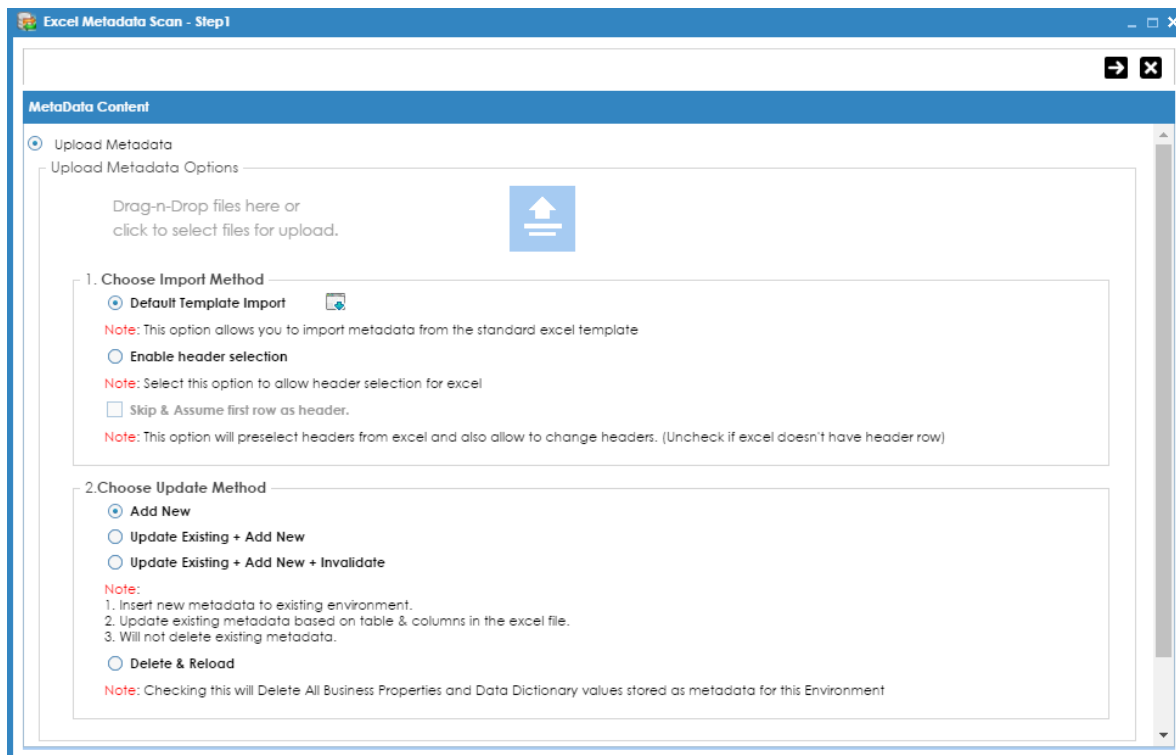


Wizard Screen 1 - Select Metadata options screen pops-up,

The metadata window to scan Excel file displays. In this window, click the "Choose File" option and select the Excel file which is in ".xls" or ".xlsx" formats e.g. "EDW\_Landing.xls".

**Note:** AMM provides an Excel template to scanning metadata models from Excel files, CSV files etc. Download the Excel file template i.e. "Download Template" icon that is provided in Launcher menu. Once this template is downloaded, use this format to define all your metadata i.e. bring in all your table/column definitions from your legacy file system into this AMM Excel template and save this file. Import this file using the Excel Scanning process (described above).



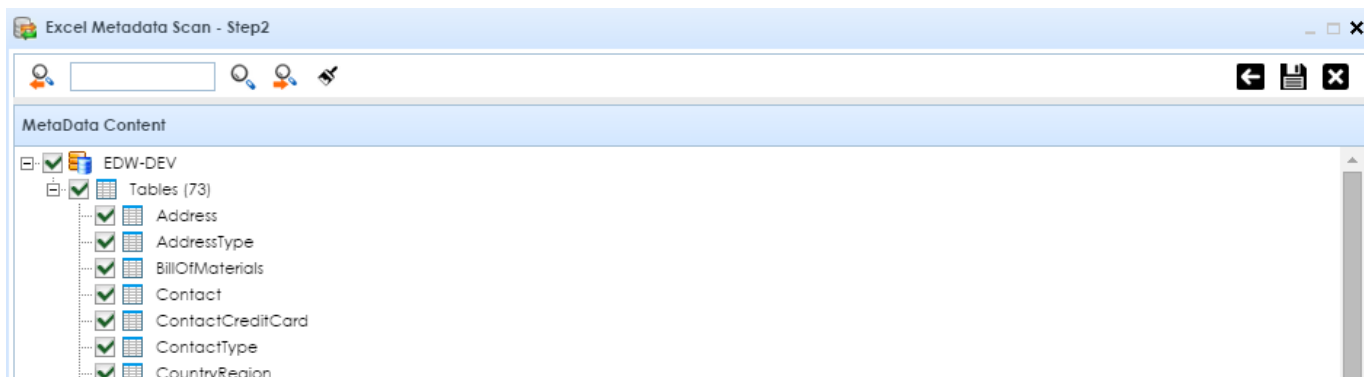


### Options to Import metadata


1. **Default Template Import** – Use this option if you are using the default AMM Excel Template to import metadata.
2. **Enable Header selection** – Use this option if you are importing metadata from an excel file that does not match with the default AMM Excel Template. Using this option, column header matching can be done at run time.
3. **Add New**- This option inserts new metadata set.
4. **Delete & Reload Environment** – selecting this option will delete any previously entered business properties and data dictionary values. Use this option only if you would like to import new business definitions.
5. **Append and Update Existing Data** – This is the default option selected where new tables are added to the existing metadata list. This option will preserve all your existing metadata while importing the new metadata set.
6. **Delete Existing Tables** – This option lets you delete any existing tables from the list of existing metadata.

### Wizard Screen 2 - Scan Environment/Upload Metadata

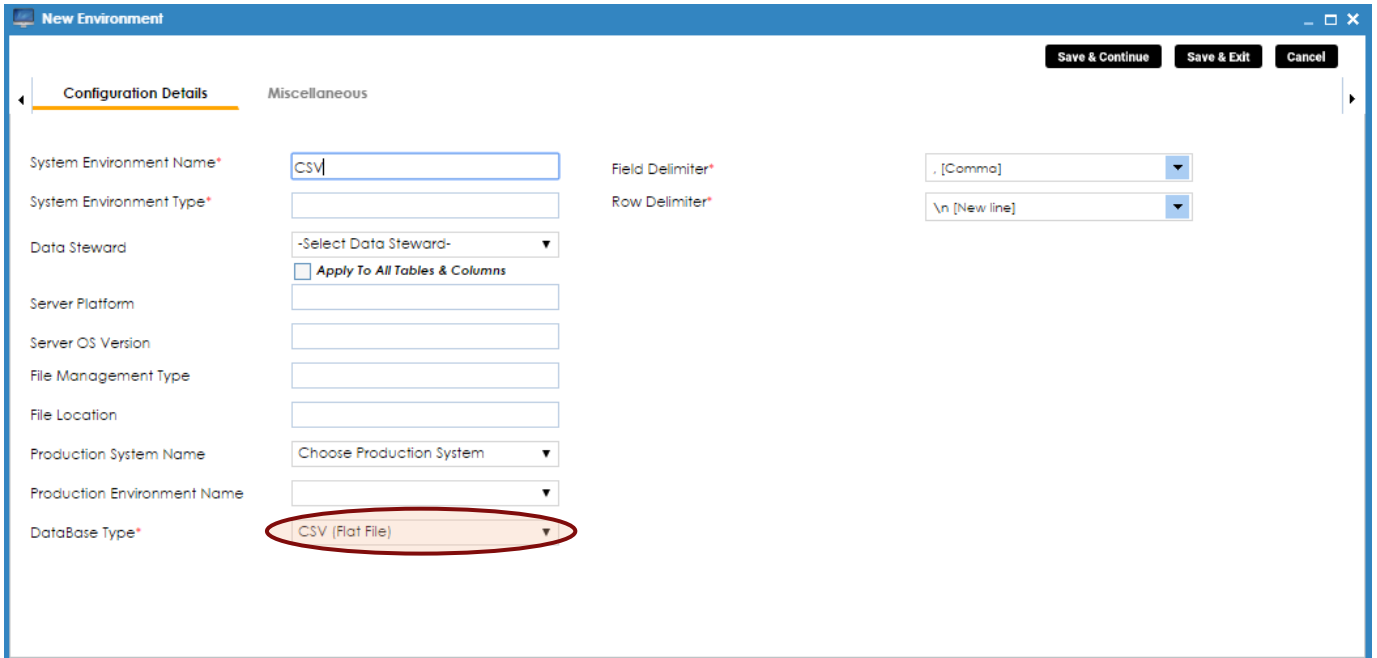
- For all available Objects (Schemas/Tables etc.) select/deselect check-box option is provided which allows user to select multiple objects to be imported (e.g. All, Single or Multiple schemas/tables)



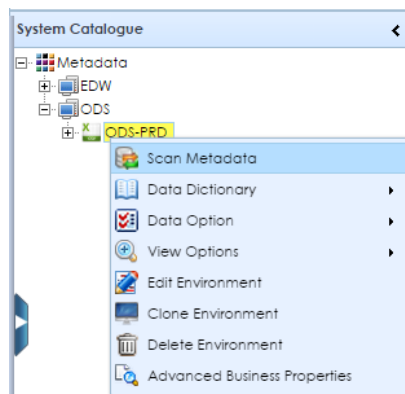


Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

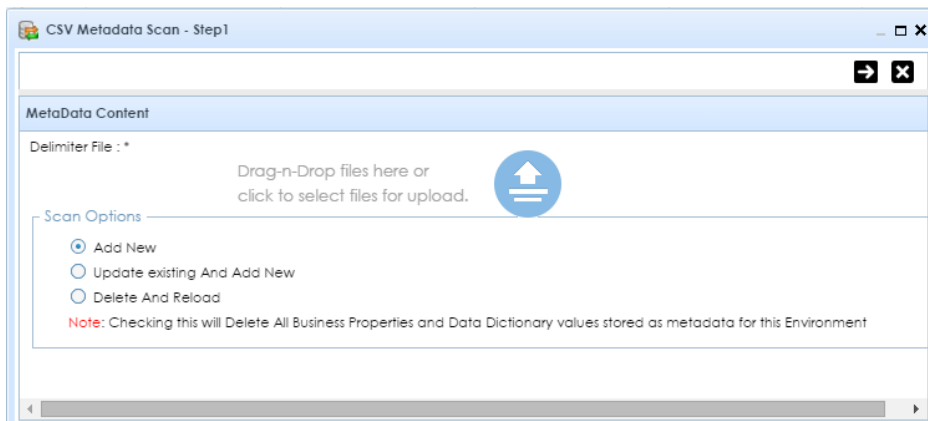
### Providing the Connectivity Parameters – “CSV”




Click on “**Save & continue**” icon to continue with scanning the Metadata **(Or)** Click on “Save & Exit” icon and right click on the environment and Click on Scan Metadata to scan the Metadata.



Wizard Screen 1 - Select Metadata options screen pops-up,



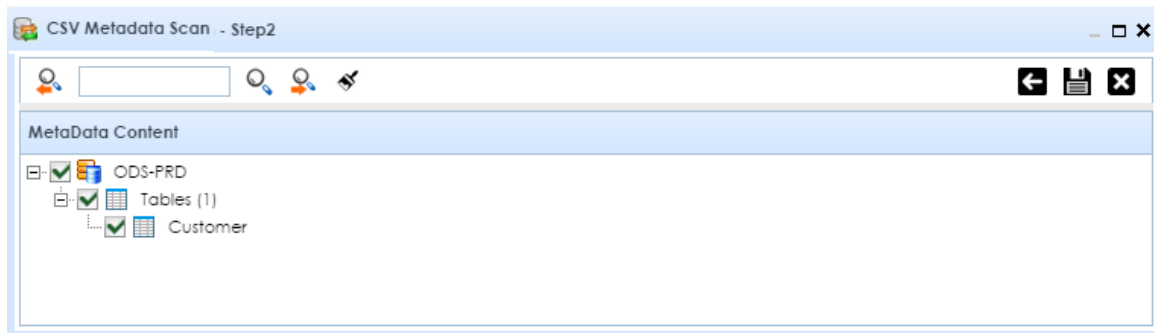
The metadata wizard to scan CSV file displays. In this window, click the “Browse icon”  and select the CSV file to upload the metadata.


#### Options to Import metadata

1. **Add New**- This option inserts new metadata set.
2. **Update Existing Data and Add New** – This is the default option selected where new tables are added to the existing metadata list. This option will preserve all your existing metadata while importing the new metadata set.
3. **Delete & Reload** – selecting this option will delete any previously entered business properties and data dictionary values. Use this option only if you would like to import new business definitions.

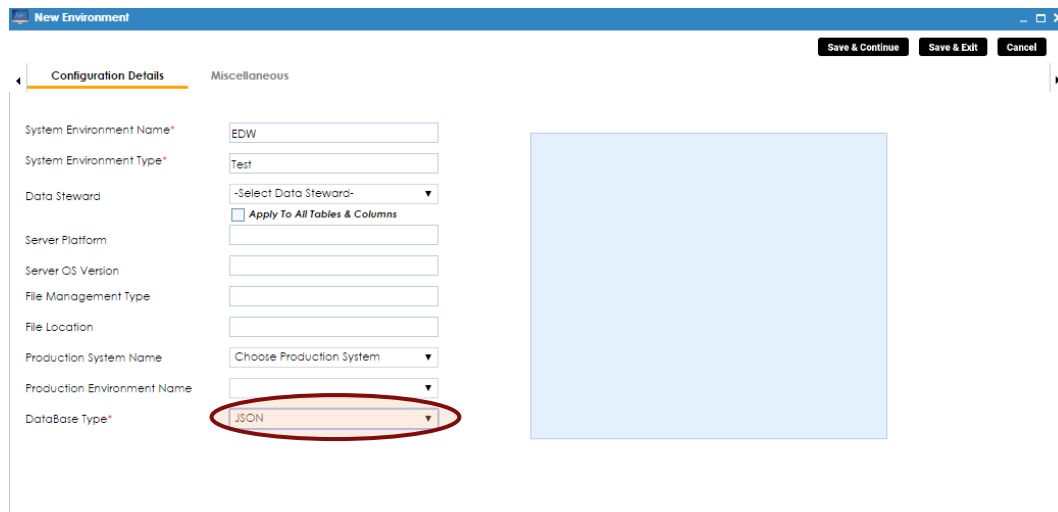
#### Wizard Screen 2 - Scan Environment/Upload Metadata

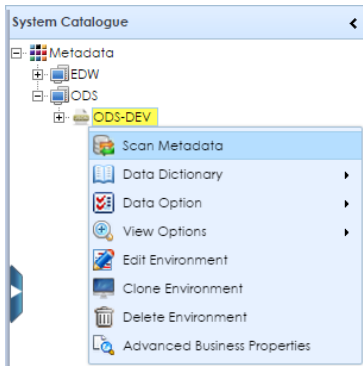
- For all available Objects (Schemas/Tables etc.) select/deselect check-box option is provided which allows user to select multiple objects to be imported (e.g. All, Single or Multiple schemas/tables)



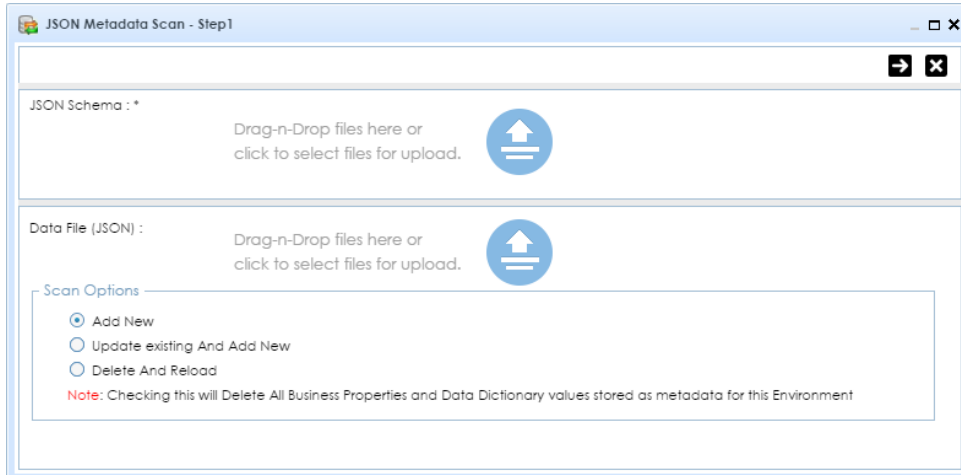
Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

### Providing the Connectivity Parameters – “JSON”





Wizard Screen 1 - Select Metadata options screen pops-up,

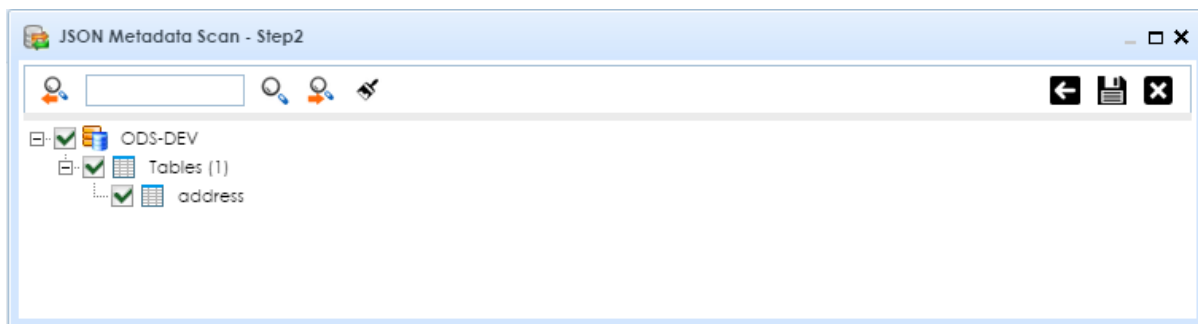



### Options to Import metadata

1. **Add New**- This option inserts new metadata set.
2. **Update Existing Data and Add New** – This is the default option selected where new tables are added to the existing metadata list. This option will preserve all your existing metadata while importing the new metadata set.
3. **Delete & Reload** – selecting this option will delete any previously entered business properties and data dictionary values. Use this option only if you would like to import new business definitions.

Wizard Screen 2 - Scan Environment/Upload Metadata

- For all available Objects (Schemas/Tables etc.) select/deselect check-box option is provided which allows user to select multiple objects to be imported (e.g. All, Single or Multiple schemas/tables)



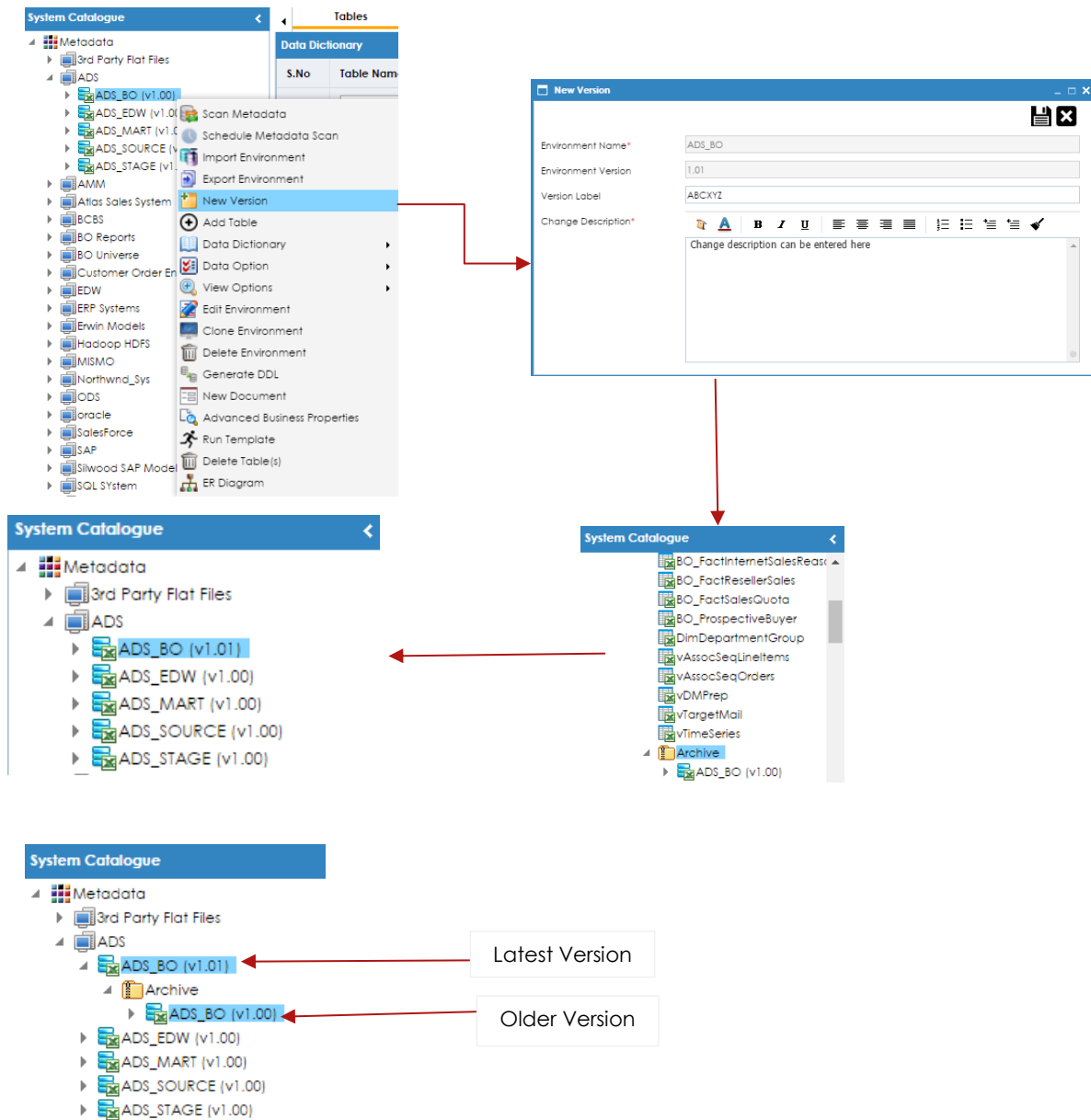
Click the save icon  when done and the metadata scan starts. A message is displayed to the end user upon completion of metadata scanning.

## Metadata Versioning

Metadata versioning is the new feature released in AMM v8.1, which can let you version the current metadata version to its new version.

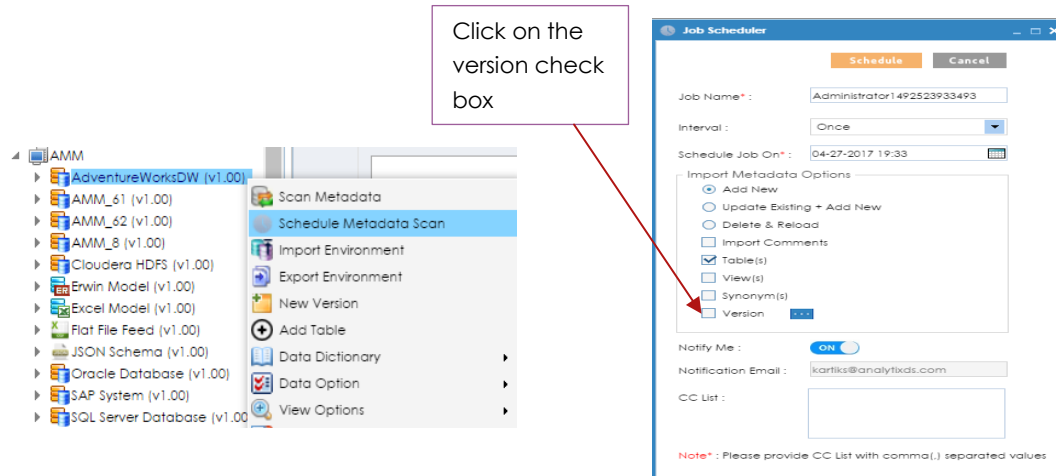
### A) Create a new version:

1. Right click on the Environment and select "New Version"
2. In the pop-up window, enter the change description (mandatory) and version label(optional) and click the save icon
3. The new version is created and the previously active version is now displayed under the archive folder as shown in the below image.

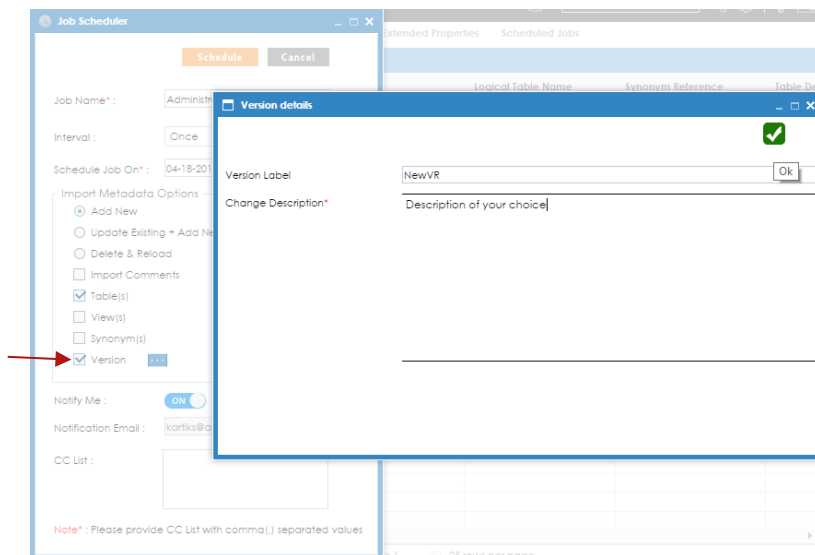


As you can see on the top image, the older version (1.00) moved to Archive and the latest version (1.01) is created with the change description.

- B) **Schedule Metadata Versioning:** You can also schedule your metadata versioning of your relational database using the Schedule Metadata Scan option.



After clicking on the Version check box, it asks you to enter Version label and Change description as shown below. Upon entering the required fields click on "Ok" to save the version details and Schedule the job accordingly.



- C) **Compare two Environments:** You can also compare any two versions/Environments to know the changes

The advanced Environments comparison capabilities allows users to quickly and efficiently compare any two versions/environments and visually view the changes between the two on a row by row basis. The robust comparison capabilities are not just limited to an Environment and its previous versions (archived environments). The advanced comparison capabilities allow users to compare an Environment to any Environment across all Systems. Users can see all Table and Column level changes in the report.

1. Select any two Environments, right click and select the "Compare Environments" option.
2. The report can be exported to Excel format.

You can see the comparison report below. It shows the changes at the column level and table level as well.

**System Catalogue**

- Metadata
  - 3rd Party Flat Files (v1.01)
    - 3rd Party Customer Files (v1.00)
    - Customer Flat Files (v1.00)
    - Product Flat Files (v1.00)
  - ADS
    - ADS\_BO (v1.01)
      - Archive
        - ADS\_BO (v1.00)
          - Export Environment
          - Data Dictionary
          - Data Option
          - View Options
          - Clone Environment
          - Generate DDL
          - Run Template
          - Compare Environments
          - ER Diagram
  - AMM
  - Atlas Sales System
  - BCSS
  - BO Reports
  - BO Universe
  - Customer Order Entry
  - Demo System

**Compare Environments**

Table Level Changes		Column Level Changes													
Change Description	System Name	Environment	Table	Column	Data Type	Len	Prec	Scale	Prim Key	Nat Key	Fore Key	Nullab	Column Definit	Column Logi Name	Column Comment
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Ad-hoc Analysis Document.n		0	0	0	N	N	N	N			
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Aggregate Ad-hoc Analysis Document.n		0	0	0	N	N	N	N			
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Aggregate Ad-hoc PBER		0	0	0	N	N	N	N			
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Bi-Annual SUSAR Line Listing.rpt		0	0	0	N	N	N	N			
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Canada Lack of Efficacy Template.rpt		0	0	0	N	N	N	N			
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Case List Inventory.rpt		0	0	0	N	N	N	N			
Column Exists in one environment and not the other	BO Reports	BO Reports	PIAST BO Reports	Clinical Trial SAE query		0	0	0	N	N	N	N			

**Note:** In the Metadata Catalogue of the Mapping Manager module, you can only see the latest version of the metadata as shown in the below image. If you want the previous version, delete the existing version in the Metadata Manager.

**Workspace Mappings**

- Mappings
  - Transformations
  - Projects
    - ADS\_Data\_Migration (4)
      - ADS\_LINEAGE (5)
      - ADS\_MISMO (8)
      - BAU (22)
      - BFSI Integration (7)
      - Customer Data Mart (16)
      - Data Warehouse (17)
      - DQ (8)
      - EDW (1)
      - HMDA Mapping (4)
      - MISMO to CDM (212)
      - ODS (18)
      - Online Data Mart (4)
      - Sales Data Mart (19)

**Mapping Summary**

Enter Mapping Name:  Select Business Rule:  Select Source Table Name:  Select Target Table Name:

**Mapping Details**

#	Project Name	Subject Hierarchy	Map Name	Lock Status	Locked By	Locked Date	Mapping State	Mapping Description
1	ADS_Data_Migration		L_Customers				IN PROGRESS	
2	ADS_Data_Migration		L_Employees				IN PROGRESS	
3	ADS_Data_Migration		L_Invoices				IN PROGRESS	
4	ADS_Data_Migration		L_Products				IN PROGRESS	

**Metadata Catalogue**

- Metadata
  - 3rd Party Flat Files
  - ADS
    - AMM
      - AdventureWorksDW (v1.01)
        - dbo.AdventureWorksDW
        - dbo.Contact
        - dbo.DatabaseLog
        - dbo.DemoContact
        - dbo.DimAccount
        - dbo.DimCustomer
        - dbo.DimEmployee
        - dbo.DimGeography
        - dbo.DimOrganization
        - dbo.DimProduct
        - dbo.DimProductCategory

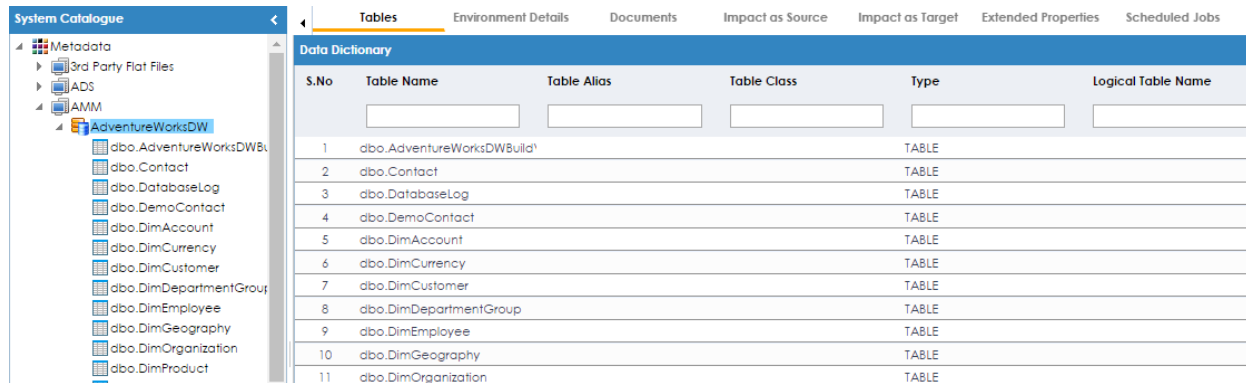
## Maintaining Enterprise Data Dictionaries

All metadata is scanned and stored in a single repository. Data Dictionaries can be instantly viewed and exported. Enterprise Data Dictionaries can be generated at the Environment level.

Select an Environment e.g. "EDW-PRD" in the System Catalogue tree. A detailed list of all tables, view, synonyms present in that environment along with their business definitions are displayed in a grid format. User can use the filters to search for specific information by typing in keywords.

The Right Window contains:

1. Tables - grid view of all TABLES, VIEWS and SYNONYMS for the selected environment
2. *Environment Details* – displays all environment related details
3. *Impact as Source* – displays a list of all mappings where the selected environment is being used as a source. Corresponding target environment information is displayed in this section.
4. *Impact as Target* - displays a list of all mappings where the selected environment is being used as a target. Corresponding source environment information is displayed in this section.
5. Extended Properties – Allows to create Key Value pairs at System - Metadata level.
6. Scheduled JOBS- Allows you to schedule metadata scan for your Database



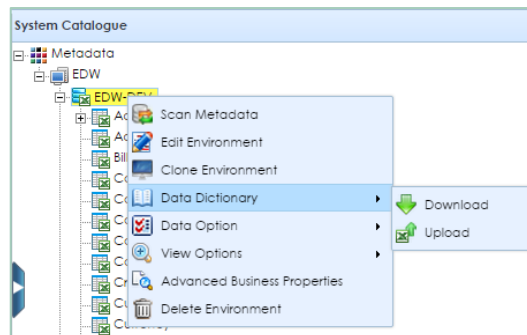
S.No	Table Name	Table Alias	Table Class	Type	Logical Table Name
1	dbo.AdventureWorksDWH			TABLE	
2	dbo.Contact			TABLE	
3	dbo.DatabaseLog			TABLE	
4	dbo.DemoContact			TABLE	
5	dbo.DimAccount			TABLE	
6	dbo.DimCurrency			TABLE	
7	dbo.DimCustomer			TABLE	
8	dbo.DimDepartmentGroup			TABLE	
9	dbo.DimEmployee			TABLE	
10	dbo.DimGeography			TABLE	
11	dbo.DimOrganization			TABLE	

Prior to scanning metadata, the corresponding Environment needs to be available as a prerequisite.

## Generating Data Dictionaries

Data Dictionary can be generated at the Environment or Table level.

1. Generating the Data Dictionary at the Environment level will include all tables and columns and their respective definitions available in the selected environment. To Generate Data Dictionary at the Environment level, right click on an Environment e.g. MIDM and select the "Data Dictionary → Download" option. This will download an excel spreadsheet containing a detailed data dictionary

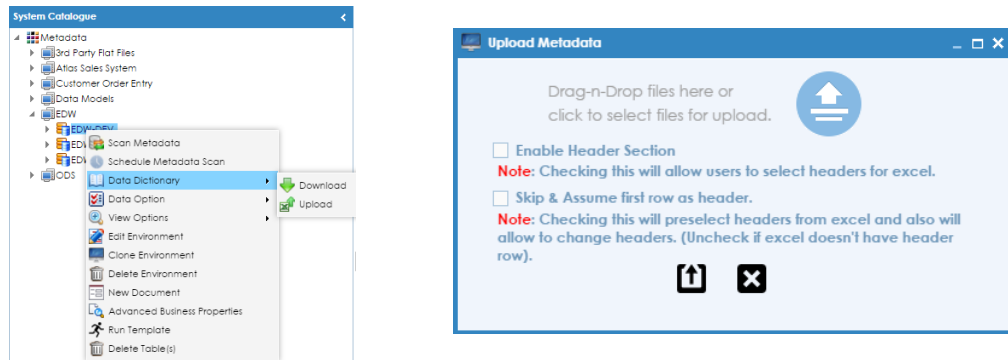


2. Generating the Data Dictionary at the Table level will only include the single table along with its column definitions. To generate the Data Dictionary at the table level, right click on a table e.g. ATTORNEY\_FEE and select the "Data Dictionary → Download" option. . This will download an excel spreadsheet containing a table specific data dictionary

## Updating Data Dictionaries at the Environment Level

Once metadata has been scanned into the repository, there are 2 ways to update and maintain this metadata

1. Download the Data Dictionary and make the necessary updates in the downloaded Excel file and update them using the "Data Dictionary → Update" option  
To use this procedure, download the data dictionary at the Environment level. In the downloaded excel file, update existing table and column information. Save changes to this excel file. Go back into the module and right click on an environment and select the "Data Dictionary → Upload" option and upload the spreadsheet to update table/column definitions.



Browse and select the Excel file containing the updates and then click the upload icon to save the changes.

**\*\*\*Important Note\*\*\*:** This process will not bring in any new tables/columns or delete any existing tables/columns. This procedure will only update existing table/column information like table definition, column definition, data type, length, column comments, table comments etc.

2. Scan new metadata thereby updating existing tables/columns and adding new tables/columns.  
This section has been covered in detail earlier. [Click here](#) to go to this section.

## Deleting Tables at the Environment Level:

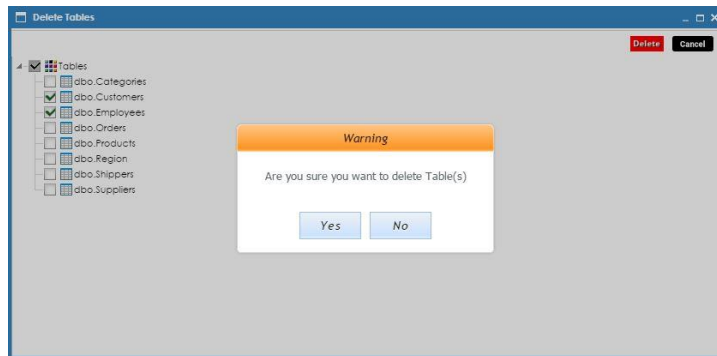
Once the metadata has been scanned into the repository from RDBMS system, and in future if user has an option to delete the Tables from the metadata repository (at an environment level) without having to rescan the metadata

1. Go to System-> Environment.
2. Right on the environment and select "Delete Tables" option.





Select the table you want to delete from the list and click on **"Delete"** icon



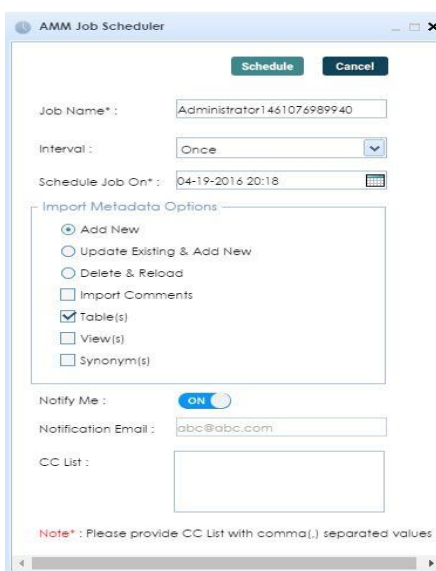
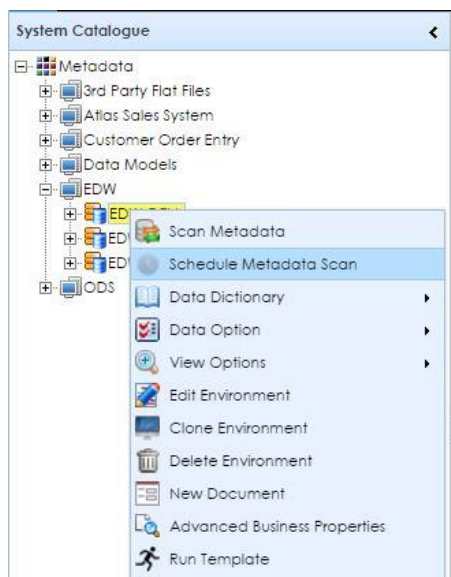
Click **"YES"** to delete the selected tables from the environment without rescanning the metadata.

Either you can even select the specific table you want to delete, Right click on the any of the table and click on **"Delete Table"** option to delete the selected table.

## Metadata Scan Scheduler at the Environment Level:

Once metadata has been scanned into the repository from RDBMS system, and in future if user wants to update the repository in AMM, there are 2 ways to update and maintain this metadata.

1. Right click on the environment and Click on Scan Metadata to scan the database objects manually
2. Right click and click on **"Schedule Metadata Scan"** which pops up a job scheduler windows to set the time interval for auto scan with email notification.



Lineage and Impact Analysis can easily be generated using the LINEAGE ANALYZER and IMPACT ANALYSIS features.

## Lineage Analyzer

The Lineage Analyzer lets you view instant upstream and downstream dependencies. Both Forward and Reverse Lineages can be run only column/attribute and end to end lineage is instantly displayed. E.g. a Column/Attribute is being mapped from SOURCE → STAGE → DATA MART → EDW → REPORTING LAYER. The LINEAGE ANALYZER lets you view this lineage instantly

## TABLE LEVEL

You can run the Lineage Analyzer (Forward, Reverse) on a particular Table from the metadata browser to determine the upstream and downstream dependencies.

From the Mapping Manager's Metadata Browser click on any **Table** on which you would like to run the lineage analysis on.

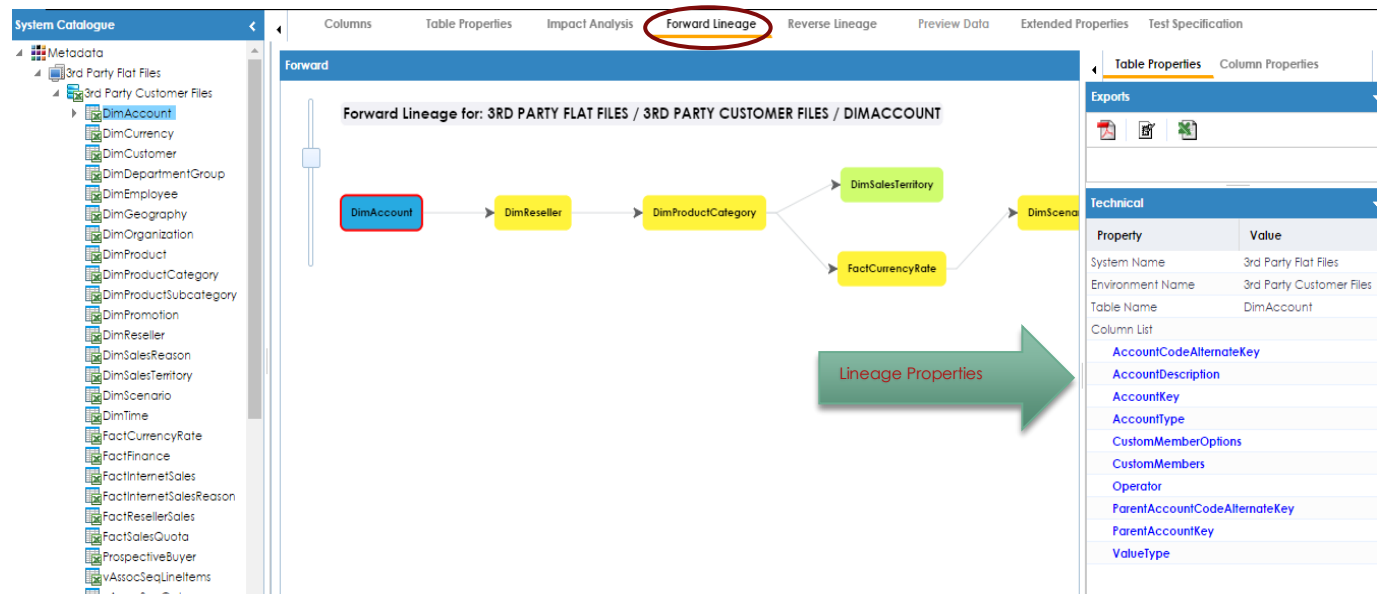
You can see **Forward Lineage** and **Reverse Lineage** at the Top Center of the screen.


Lineage can be executed against the mappings in all projects or specific projects based on the filter selected.

The Lineage Analysis report is displayed and this report can be exported to PDF, RTF and JPG formats.

In the Metadata Manager Module, You can run the Lineage Analyzer (Forward, Reverse lineages) on a particular Table/Column from the System Catalogue browser to determine the upstream and downstream dependencies.

### Forward Lineage:



The starting Source is displayed in a BLUE BOX  while the ending targets are displayed in a GREEN BOX  with all the intermediate hubs being displayed in YELLOW BOXES .

To view the lineage properties, double click on the immediate TARGET i.e. YELLOW and GREEN boxes and all related Business, Technical and Transformation related information can be viewed in the accordion section to the right hand side of your lineage window.

Double click on Table **DIMCUSTOMER** and all its related columns are displayed on the right side under Table properties tab. Now to view column lineage specific, double click the column on which you want to run lineage from the columns list.

System Catalogue

Columns Table Properties Impact Analysis **Forward Lineage** Reverse Lineage Preview Data Extended Properties Test Specification

Forward

Forward Lineage for: 3RD PARTY FLAT FILES / 3RD PARTY CUSTOMER FILES / DIMCUSTOMER

Table Properties Column Properties

Exports

Technical

Property	Value
System Name	3rd Party Flat Files
Environment Name	3rd Party Customer Files
Table Name	DimCustomer
Column List	<ul style="list-style-type: none"> <li>AddressLine1</li> <li>AddressLine2</li> <li>BirthDate</li> <li>CommuteDistance</li> <li>CustomerAlternateKey</li> <li><b>CustomerKey</b></li> <li>DateFirstPurchase</li> <li>EmailAddress</li> <li>EnglishEducation</li> <li>EnglishOccupation</li> <li>FirstName</li> <li>FrenchEducation</li> </ul>

Double click on the selected column “**CustomerKey**”, displays the corresponding Forward and Reverse lineage.

## Column level – Forward and Reverse lineage

This feature lets you view the Forward lineage within a single UI frame with the extended option to view Reverse lineage on individual frames.

System Catalogue

Columns Table Properties Impact Analysis **Forward Lineage** Reverse Lineage Preview Data Extended Properties Test Specification

Forward

Column Lineage

Forward Lineage Reverse Lineage

Forward Lineage for: 3RD PARTY FLAT FILES / 3RD PARTY CUSTOMER FILES / DIMCUSTOMER / CUSTOMERKEY

Table Properties Column Properties

Exports

Views

Group By

Summary

Technical

Property	Value
System Name	3rd Party Flat Files
Environment Name	3rd Party Customer Files
Table Name	DimCustomer
Column Name	<b>CustomerKey</b>
Column Data Type	Int Identity
Column Precision	0
Column Length	10
Column Scale	
Xpath	
Primary Key Flag	

## Column level lineage using Group by feature:

Under views you have an option to run lineage by “**Group By**” option

“**Group By**” feature lets you breakdown the generated lineage diagram and group relevant information based on specific columns. E.g. group all source columns based on a certain data type, group source columns relevant to a specific Xpathvalue, etc. from the drop down list.

This gives the detailed lineage view for the business user based on their specific requirement.

The screenshots show the Erwin Mapping Manager interface with the 'Forward Lineage' view selected. The 'Group By' dropdown menu is open, showing options for grouping source columns by data type, XPath, identity flag, nullable flag, natural key flag, target data type, XPath, or primary key flag.

**Forward Lineage for: 3RD PARTY FLAT FILES / 3RD PARTY CUSTOMER FILES / DIMCUSTOMER / CUSTOMERKEY**

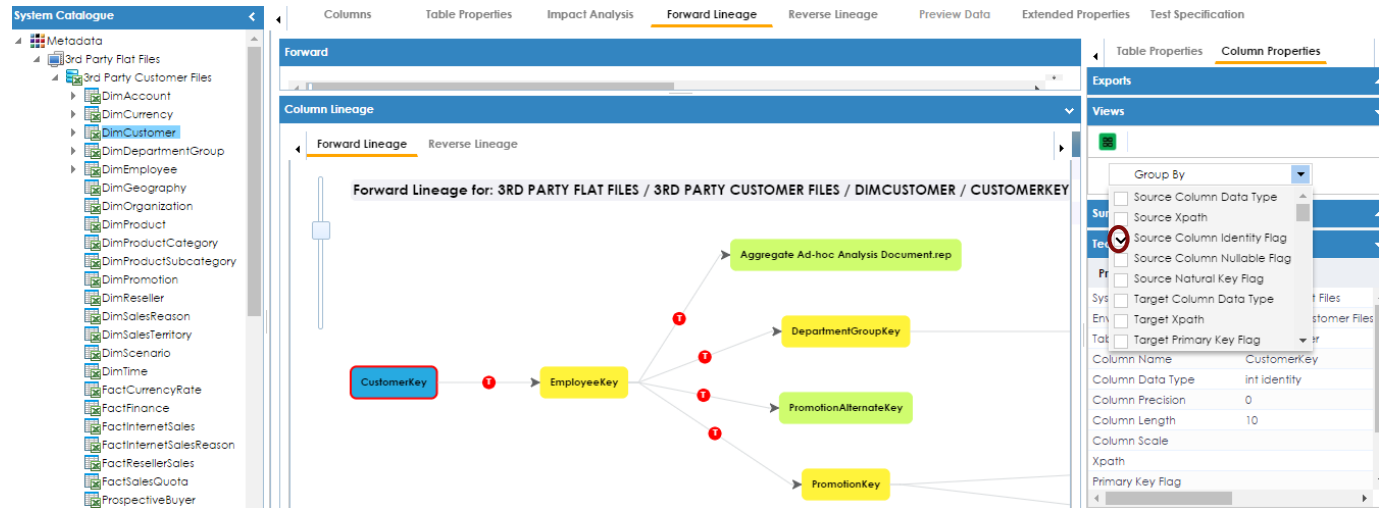
```

graph LR
    CustomerKey[CustomerKey] -- 1 --> EmployeeKey[EmployeeKey]
    EmployeeKey -- 1 --> Aggregate[Aggregate Ad-hoc Analysis Document.rep]
    EmployeeKey -- 1 --> DepartmentGroupKey[DepartmentGroupKey]
    EmployeeKey -- 1 --> PromotionAlternateKey[PromotionAlternateKey]
  
```

**Technical Properties Table:**

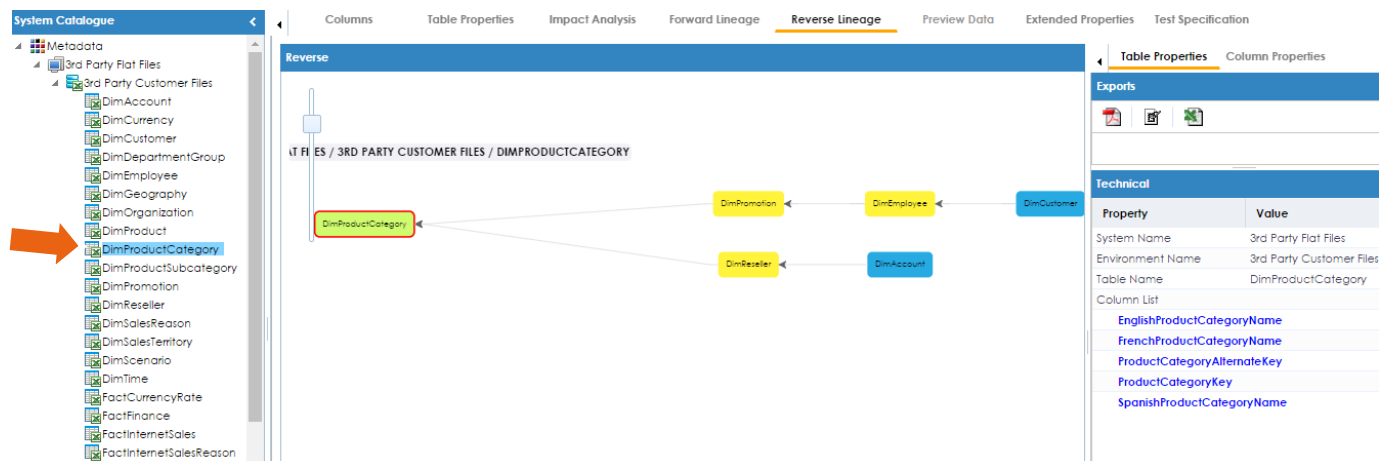
Property	Value
System Name	3rd Party Flat Files
Environment Name	3rd Party Customer Files
Table Name	DimCustomer
Column Name	CustomerKey
Column Data Type	int identity
Column Precision	0
Column Length	10
Column Scale	

## Running Column level lineage at "Source Column Identity Flag" level



## Reverse Lineage at Table Level:

Reverse lineage also works in the same way as forward lineage and you can view its corresponding column lineage by double clicking on the table and its associated columns.

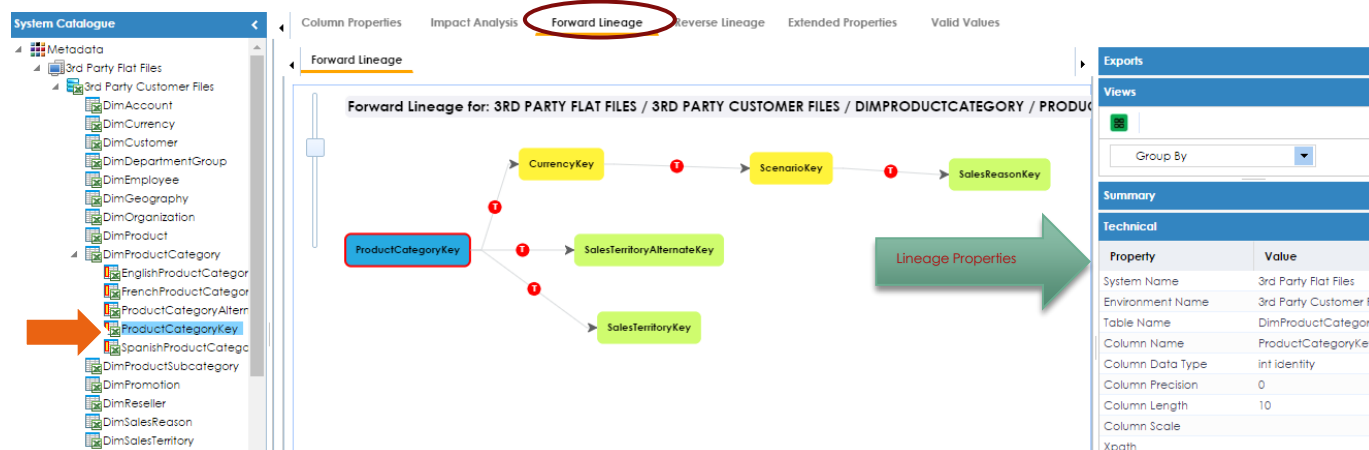


## COLUMN LEVEL

### FORWARD LINEAGE:

The forward lineage shows you all lineage starting with the selected column as the source and all its corresponding targets and the final targets for each of the intermediate hubs.

To view the lineage for a specific column, click on the column in the 'System Catalogue' tree and go into the "Forward Lineage" tab.



In the Screenshot above, FORWARD LINEAGE is being run on the column "PRODUCT CATEGORY KEY". This column "PRODUCT CATEGORY KEY" is being mapped to three different columns "CURRENTKEY", "SALESTERITORYALERNATEKEY", "SALESTERITORYKEY" and CURRENTKEY is then being mapped to "SCENARIOKEY" which in turn is being mapped to "SALESREASONKEY" which is the final destination.

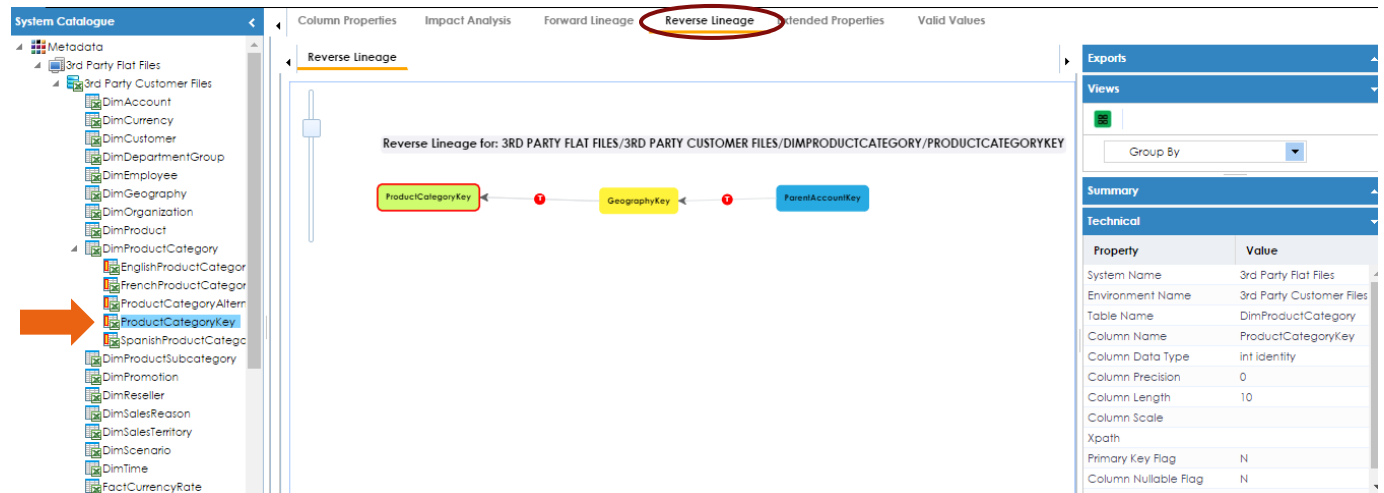
The starting Source is displayed in a BLUE BOX while the ending targets are displayed in a GREEN BOX with all the intermediate hubs being displayed in YELLOW BOXES.

To view the lineage properties, double click on the immediate TARGET i.e. YELLOW and GREEN boxes and all related Business, Technical and Transformation related information can be viewed in the accordion section to the right hand side of your lineage window and you can also have a view other two layouts same as Table level forward lineage.

## REVERSE LINEAGE:

The forward lineage shows you all lineage starting with the selected column as the source and all its corresponding targets and the final targets for each of the intermediate hubs.

To view the reverse lineage for a specific column, click on the column in the 'System Catalogue' tree and go into the "Reverse Lineage" tab.



In the Screenshot below, REVERSE LINEAGE is being run on the column "PRODUCTCATEGORYKEY". This column "PRODUCTCATEGORYKEY" is being sourced by one different column "GEOGRAPHYKEY". "GEOGRAPHYKEY" is in turn being sourced by "PARENTACCOUNTKEY".

The ending TARGET is displayed in a GREEN BOX while the starting sources are displayed in BLUE BOXES with all the intermediate hubs being displayed in YELLOW BOXES.

To view the lineage properties, double click on the immediate TARGET i.e. YELLOW and GREEN boxes and all related Business, Technical and Transformation related information can be viewed in the accordion section to the right hand side of your lineage window.

## Run Lineage by using "Group By" option:

Under views you have an option to run lineage by "Group By" option

"Group By" feature lets you breakdown the generated lineage diagram and group relevant information based on specific columns. E.g. group all source columns based on a certain data type, group source columns relevant to a specific Xpathvalue, etc. from the drop down list.

This gives the detailed lineage view for the business user based on their specific requirement.

System Catalogue

Column Properties Impact Analysis **Forward Lineage** Reverse Lineage Extended Properties Valid Values

Forward Lineage

Forward Lineage for: 3RD PARTY FLAT FILES / 3RD PARTY CUSTOMER FILES / DIMPRODUCTCATEGORY / PRODUCTCATEGORYKEY

Exports

Views

Group By

Summary

Property	Value
System Name	3rd Party Flat Files
Environment Name	3rd Party Customer Files
Table Name	DimProductCategory
Column Name	ProductCategoryKey
Column Data Type	int identity
Column Precision	0
Column Length	10
Column Scale	
Xpath	
Primary Key Flag	
Column Identity Flag	N

System Catalogue

Column Properties Impact Analysis **Forward Lineage** Reverse Lineage Extended Properties Valid Values

Forward Lineage

Forward Lineage for: 3RD PARTY FLAT FILES / 3RD PARTY CUSTOMER FILES / DIMPRODUCTCATEGORY / PRODUCTCATEGORYKEY

Exports

Views

Group By

Source Column Data Type

Source Xpath

Source Primary Key Flag

Source Column Identity Flag

Source Column Nullable Flag

Source Natural Key Flag

Target Column Data Type

Target Xpath

Property	Value
Column Name	ProductCategoryKey
Column Data Type	int identity
Column Precision	0
Column Length	10
Column Scale	
Xpath	
Primary Key Flag	
Column Identity Flag	N

System Catalogue

Column Properties Impact Analysis **Forward Lineage** Reverse Lineage Extended Properties Valid Values

Forward Lineage

Forward Lineage for: 3RD PARTY FLAT FILES / 3RD PARTY CUSTOMER FILES / DIMPRODUCTCATEGORY / PRODUCTCATEGORYKEY

Exports

Views

Group By

Source Column Data Type

Source Xpath

Source Primary Key Flag

Source Column Identity Flag

Source Column Nullable Flag

Source Natural Key Flag

Target Column Data Type

Target Xpath

Property	Value
Column Name	SalesReasonKey
Column Data Type	int identity
Column Length	10
Column Precision	0
Column Scale	
Xpath	
Primary Key Flag	N
Column Nullable Flag	N



## Impact Analysis

Impact Analysis reports can be viewed at the selected Environment, Table or column level. To run the impact analysis report, click on a table, column or environment in the "System Catalogue" tree and then go into the "Impact as Source" or "Impact as Target" tabs to view the respective impacts.

#	Project Name	Mapping Name	Target Details Environment Name
1	Customer Data Mart	1-Load Customer Accounts	EDW-PRD
2	Customer Data Mart	1-Load Customer Accounts11	EDW-PRD
3	DQ	L_Accounts	Product Flat Files
4	Sales Data Mart	Lineage Mapping	3rd Party Customer Files
5	Sales Data Mart	Report_Mapping	BO Reports

### Impact as Source

This section shows you all instances where the selected Environment/Table/Column is being used as a Source across your mappings. This section will show all corresponding Target related information.

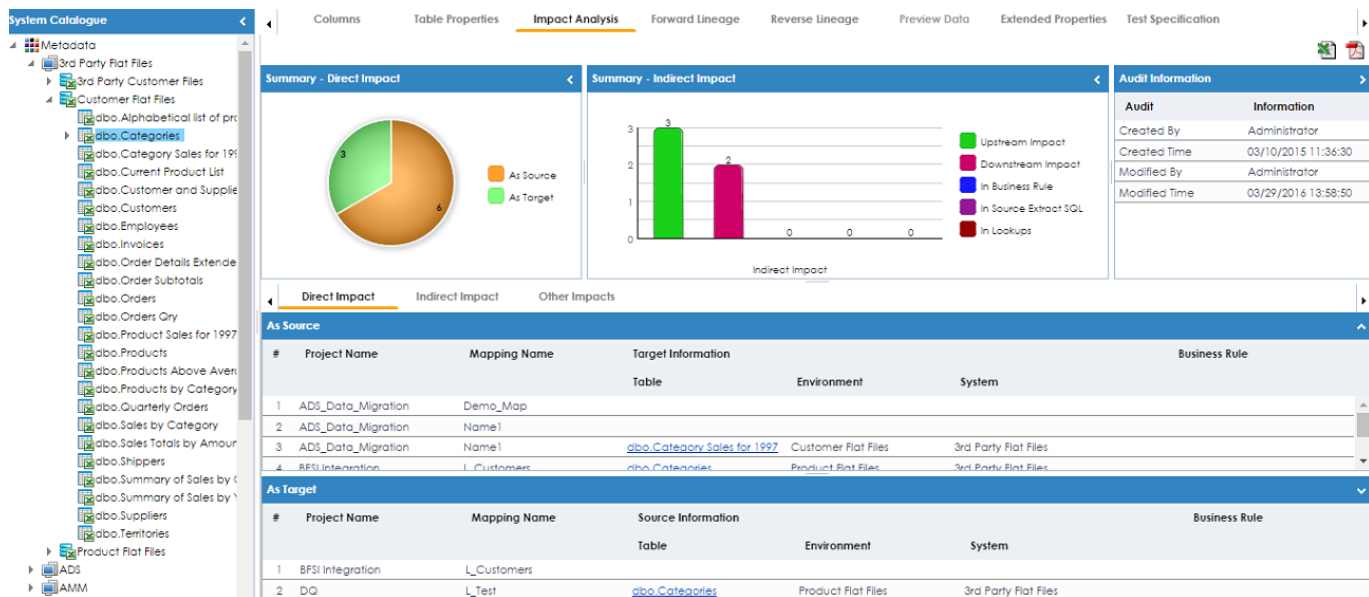
#### At the Environment Level

When the IMPACT ANALYSIS is viewed at the environment level, this section displays all the instances where the selected environment is being used as a source and their corresponding target environments and the mappings in which these environments are being mapped.

#	Project Name	Mapping Name	Target Details Environment Name
1	Customer Data Mart	1-Load Customer Accounts	EDW-PRD
2	Customer Data Mart	1-Load Customer Accounts11	EDW-PRD
3	DQ	L_Accounts	Product Flat Files
4	Sales Data Mart	Lineage Mapping	3rd Party Customer Files
5	Sales Data Mart	Report_Mapping	BO Reports

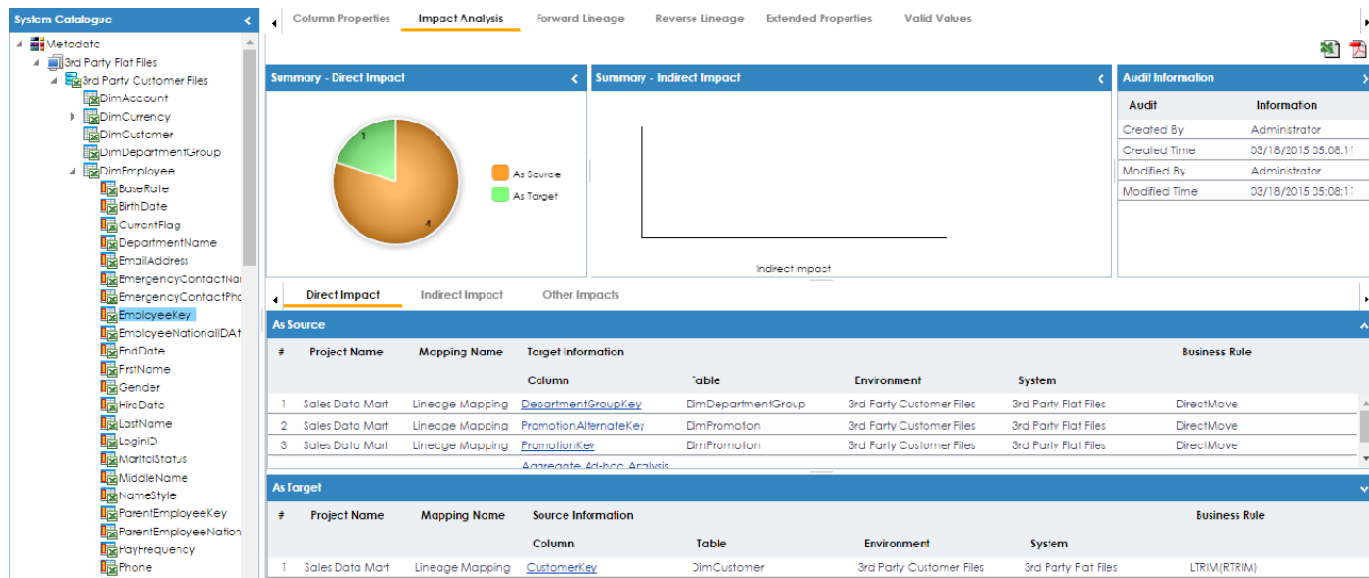
#### At the Table Level

When the IMPACT ANALYSIS is viewed at the table level, this section displays all the instances where the selected table is being used as a source and their corresponding target environments and tables and the mappings in which these tables are being mapped



## At the Column Level

When the IMPACT ANALYSIS is viewed at the column level, this section displays all the instances where the selected column is being used as a source and their corresponding target environments, tables & columns and the mappings in which these columns are being mapped



Impact Analysis report provides Hyperlink capability both at Table and Column level which gives you a detailed summary of Table/Column properties that got impacted as source and target.

## Impact Table Properties:

System Catalogue

- Metadata
  - 3rd Party Flat Files
    - 3rd Party Customer Files
      - DimAccount
      - DimCurrency
      - DimCustomer
      - DimDepartmentGroup
      - DimEmployee**
      - DimGeography
      - DimOrganization
      - DimProduct
      - DimProductCategory
      - DimProductSubcategory
      - DimPromotion
      - DimReseller
      - DimSalesReason
      - DimSalesTerritory
      - DimScenario
      - DimTime
      - FactCurrencyRate
      - FactFinance
      - FactInternetSales
      - FactInternetSalesReason

Columns Table Properties **Impact Analysis** Forward Lineage Reverse Lineage Preview Data Extended Properties Test Specification

**Summary - Direct Impact**

**Summary - Indirect Impact**

**Audit Information**

Audit	Information
Created By	Administrator
Created Time	03/18/2015 05:08:11
Modified By	Administrator
Modified Time	03/18/2015 05:08:11

**Direct Impact** Indirect Impact Other Impacts

**As Source**

#	Project Name	Mapping Name	Target Information	Environment	System	Business Rule
1	Sales Data Mart	Lineage Mapping	DimDepartmentGroup	3rd Party Customer Files	3rd Party Flat Files	DirectMove
2	Sales Data Mart	Lineage Mapping	DimPromotion	3rd Party Customer Files	3rd Party Flat Files	DirectMove
3	Sales Data Mart	Report Mapping	FACT ROL Report	ROL Report	ROL Report	

Click on the Table "DimDepartmentGroup", it gives the Table properties with detailed summary, impact report can be can exported to excel and pdf formats.

Table Properties

DimDepartmentGroup(3rd Party Customer Files.3rd Party Flat Files)

Columns Table Properties **Impact Analysis** Forward Lineage Reverse Lineage Preview Data Extended Properties Test Specification

**Summary - Direct Impact**

**Summary - Indirect Impact**

**Audit Information**

Audit	Information
Created By	Administrator
Created Time	03/18/2015 05:08:11
Modified By	Administrator
Modified Time	03/18/2015 05:08:11

**Direct Impact** Indirect Impact Other Impacts

**As Source**

#	Project Name	Mapping Name	Target Information	Environment	System	Business Rule
1	Sales Data Mart	Lineage Mapping	DimProductSubcategory	3rd Party Customer Files	3rd Party Flat Files	LTRIM

## Impact Column Properties:

Metadata

- 3rd Party Flat Files
  - 3rd Party Customer Files
    - DimAccount
    - DimCurrency
    - DimCustomer
    - DimDepartmentGroup
    - DimEmployee
      - BaseRate
      - BirthDate
      - CurrentFlag
      - DepartmentName
      - EmailAddress
      - EmergencyContactName
      - EmergencyContactPhone
      - EmployeeKey**
      - EmployeeNationalIDAlternate
      - EndDate
      - FirstName
      - Gender
      - HireDate
      - LastName
      - LoginID
      - MaritalStatus
      - MiddleName
      - NameStyle
      - ParentEmployeeKey
      - ParentEmployeeNationalIDAlternate
      - PayFrequency
      - Phone

Columns Table Properties **Impact Analysis** Forward Lineage Reverse Lineage Preview Data Extended Properties Test Specification

**Summary - Direct Impact**

**Summary - Indirect Impact**

**Audit Information**

Audit	Information
Created By	Administrator
Created Time	03/18/2015 05:08:11
Modified By	Administrator
Modified Time	03/18/2015 05:08:11

**Direct Impact** Indirect Impact Other Impacts

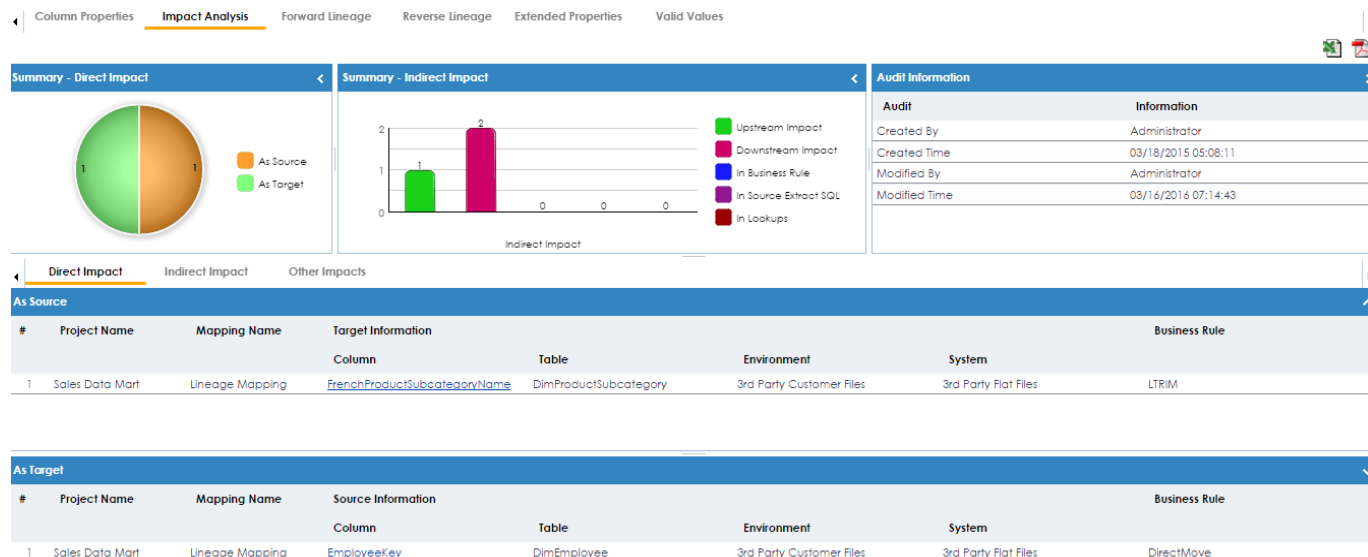
**As Source**

#	Project Name	Mapping Name	Target Information	Environment	System	Business Rule	
1	Sales Data Mart	Lineage Mapping	DepartmentGroupKey	DimDepartmentGroup	3rd Party Customer Files	3rd Party Flat Files	DirectMove
2	Sales Data Mart	Lineage Mapping	PromotionAlternateKey	DimPromotion	3rd Party Customer Files	3rd Party Flat Files	DirectMove
3	Sales Data Mart	Lineage Mapping	PromotionKey	DimPromotion	3rd Party Customer Files	3rd Party Flat Files	DirectMove

**As Target**

#	Project Name	Mapping Name	Source Information	Environment	System	Business Rule	
1	Sales Data Mart	Lineage Mapping	CustomerKey	DimCustomer	3rd Party Customer Files	3rd Party Flat Files	LTRIM(RTRIM)

Click on the Column “DepartmentGroupKey”, it gives the Column properties with detailed summary, impact report can be exported to excel and pdf formats.



## Impact as Target

This section shows you all instances where the selected Environment/Table/Column is being used as a Target across your mappings. This section will show all corresponding source related information.

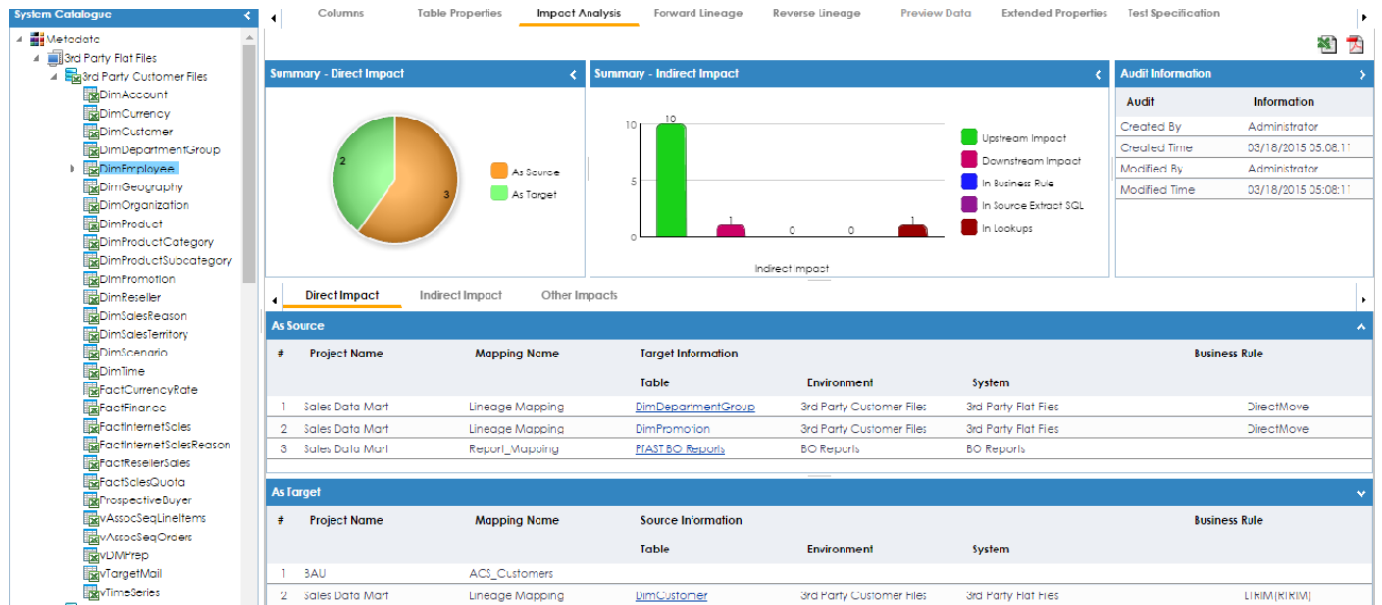
## At the Environment Level

When the IMPACT ANALYSIS is viewed at the environment level, this section displays all the instances where the selected environment is being used as a target and their corresponding source environments and the mappings in which these environments are being mapped.

System Catalogue		Tables	Environment Details	Documents	Impact as Source	Impact as Target	Extended Properties	Scheduled Jobs
<ul style="list-style-type: none"> <li>Metadata           <ul style="list-style-type: none"> <li>3rd Party Flat Files               <ul style="list-style-type: none"> <li>3rd Party Customer Files</li> <li><b>Customer Flat Files</b></li> <li>Product Flat Files</li> </ul> </li> <li>ADS</li> <li>AMM</li> <li>Atlas Sales System</li> <li>BCBS</li> <li>BO Reports</li> <li>BO Universe</li> <li>Customer Order Entry</li> <li>EDW</li> <li>ERP Systems</li> <li>Erwin Models</li> <li>Hadoop HDFS</li> <li>MISMO</li> </ul> </li></ul>								
#	Project Name	Mapping Name	Source Details					
			Environment Name					
1	ADS_Data_Migration	Name1	Customer Flat Files					
2	ADS_MISMO	LOAD CUSTOMER ACCOUNTS	3rd Pty Data Files					
3	ADS_MISMO	LOAD CUSTOMER ACCOUNTS						
4	BAU	ACS_Customers_Manual	Product Flat Files					
5	BFSI Integration	L_Customers						
6	DataWarehouse	1-Load Customer Accounts						
7	DataWarehouse	1-Load Customer Accounts	3rd Pty Data Files					
8	DQ	L_Test	Product Flat Files					
9	DQ	L_Test						

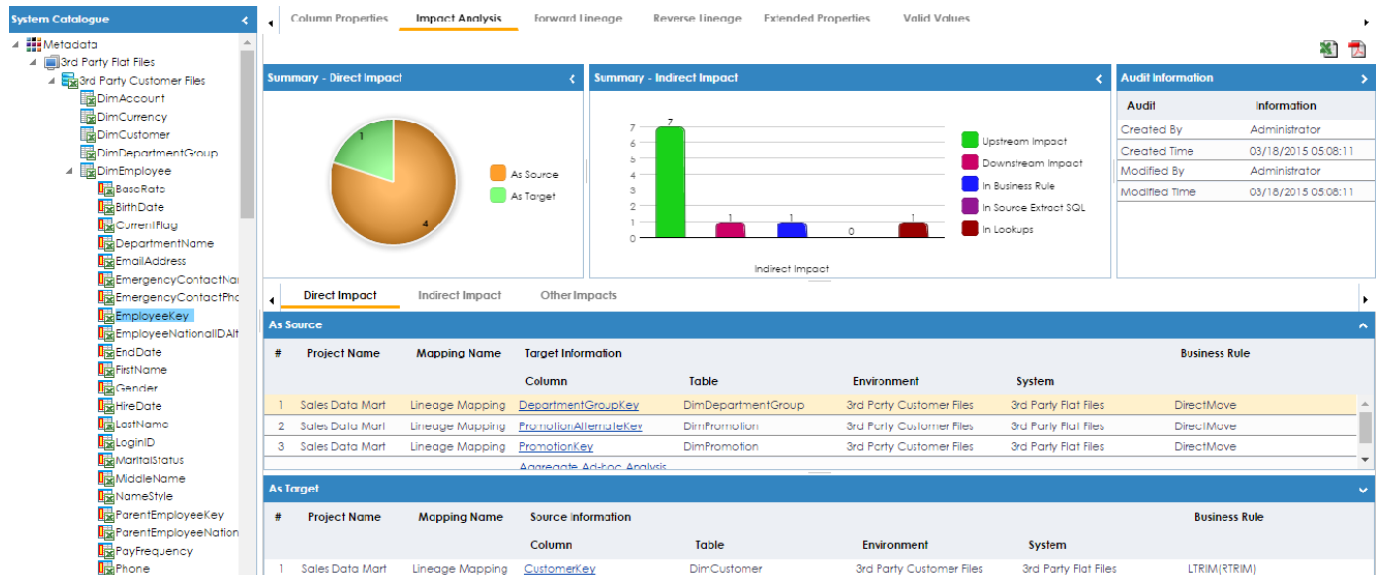
## At the Table Level

When the IMPACT ANALYSIS is viewed at the table level, this section displays all the instances where the selected table is being used as a target and their corresponding source environments and tables and the mappings in which these tables are being mapped.



## At the Column Level

When the IMPACT ANALYSIS is viewed at the column level, this section displays all the instances where the selected column is being used as a target and their corresponding source environments, tables & columns and the mappings in which these columns are being mapped





## Global Search across Metadata Repository

The Metadata Manager module facilitates quick and easy search of the entire metadata repository. Search is carried out across Systems, Environments, Table and Column information.

To search any piece of data, enter the keyword in the global search text field and click the search icon. Ex: EDW



System Name	System Environment Name	System Environment Type	Server Platform	Server OS Version	File Management Type	File Location
EDW	<a href="#">EDW-DEV</a>	DEV				
EDW	<a href="#">EDW-PRD</a>	PROD				
EDW	<a href="#">EDW-TEST</a>	TEST				

A **LIKE** search is executed on the entered keywords i.e. %KEYWORD% and all search results across the Systems, Environments, Tables and Columns are displayed and grouped into respective tabs.

Hyperlinks are provided for the System, Environment, Table and Column fields in the respective tabs for the user to easily navigate to the corresponding entity and view related information.

## Data Preview Capabilities

Data preview capability is provided at the Table level to instantly view data for profiling purposes. To view Table data, click on a Table in the "System Catalogue" tree and go into the "Preview Data" tab

KV_ID	KEY_NAME	KEY_VALUE	OBJECT_TYPE_ID	OBJECT_ID	DATATYPE_ID
1	Data Steward	Sam Benedict	4	189	1
2	Multiple References?	Y	4	189	1
3	Data Steward	Mike Boggs	3	26	1
4	Logical Table Name	CATEGORIES	3	26	1
5	Key1	Value1	3	30	1
6	Key2	Value2	3	30	1
7	Data Steward	Tomas	3	260	1
8	Data Steward	Martha Stewart	4	540	1
10	Row Count	10	9	46935	1
11	User Def 6	6	8	527	1
12	Project Owner Responsible	Mike Chan	6	3	1
13	Subject Area Owner	Sam B	7	8	1
14	Secondary Owner	Mike B	7	8	1
15	MAPPING STEWARD	MIKE B	8	527	1

A SQL EDITOR is also provided where user can modify the SQL query and execute at run time.

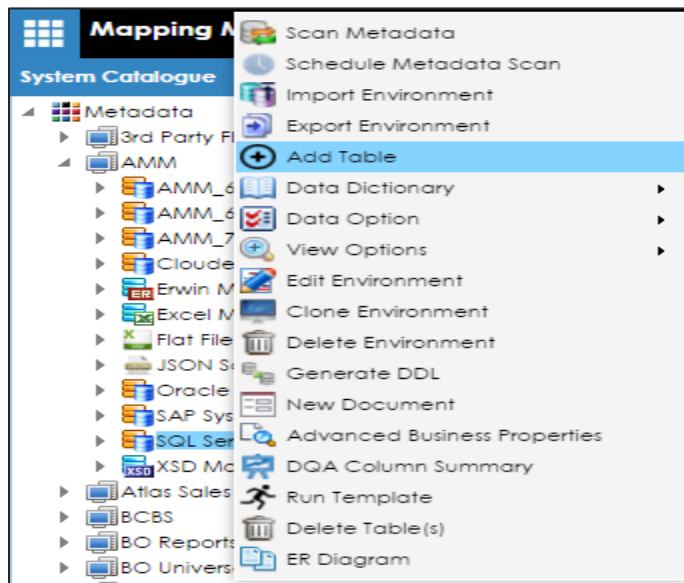
NOTE: Permissions required to scan metadata from a Database:


We need to provide read only permissions to the User (on the database) to be able to scan metadata from it.

## Create Custom Tables/Columns

We can add custom tables to any environment from the System Manager module itself.

To add a new table, right click on any environment – for example right click on the 'SQL Server Database' environment and select the 'Add Table Option'



The 'Add New Table' popup window is displayed. Enter the table name (mandatory field) and the other parameters (optional) as required and click on the Save button 

The 'Add New Table' window is shown with two main sections: 'Technical Properties' and 'Business Properties'.

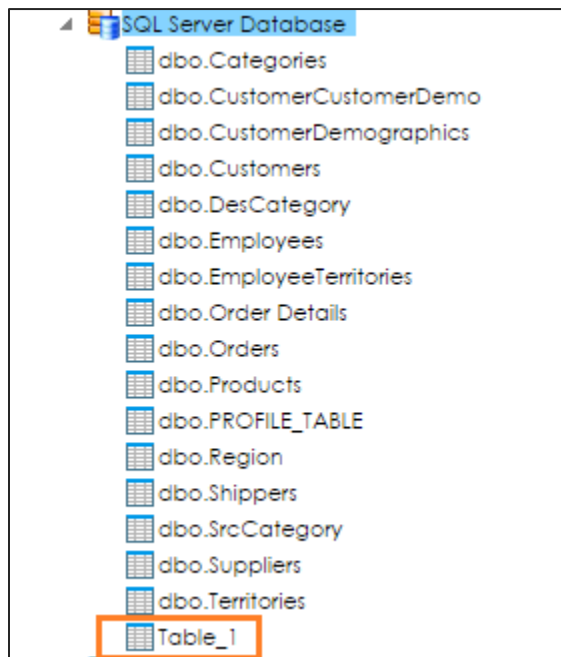
**Technical Properties:**

- Table Name:
- System Name:
- Synonym Reference:
- Environment Name:
- No of Rows:
- File Type:

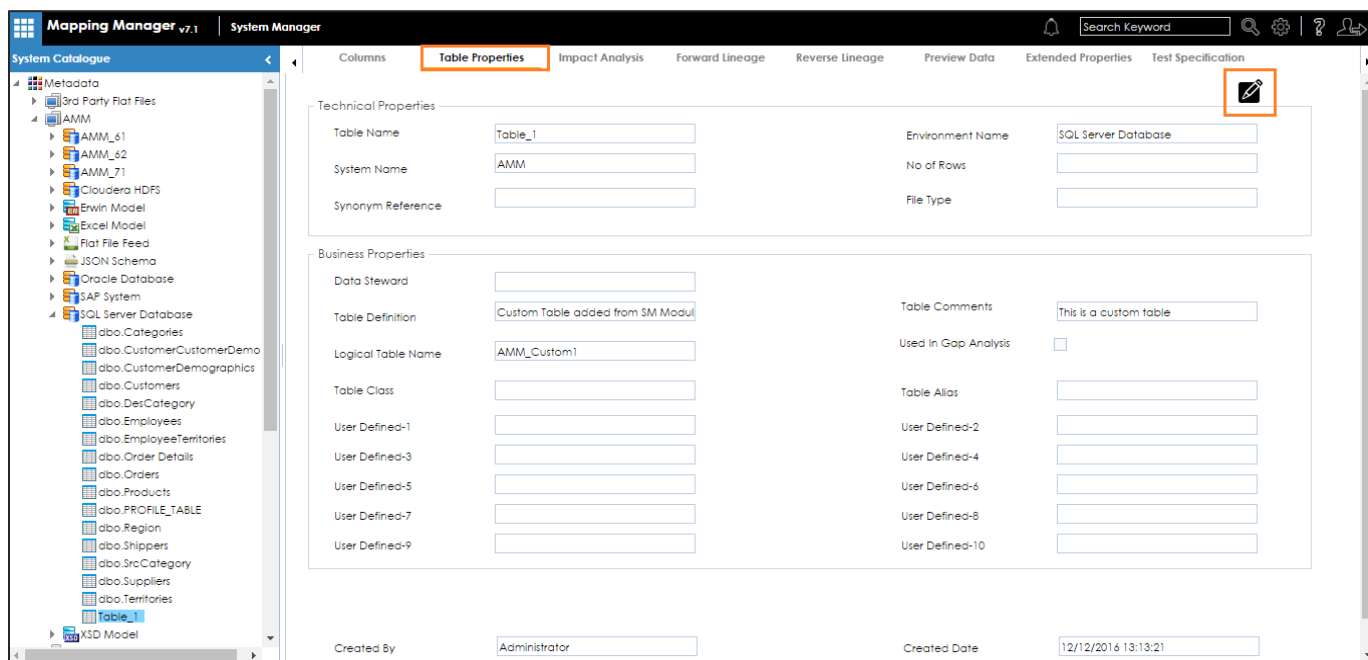
**Business Properties:**

- Data Steward:
- Table Definition:
- Logical Table Name:
- Table Class:
- User Defined-1:
- User Defined-3:
- User Defined-5:
- User Defined-7:
- User Defined-9:
- Table Comments:
- Used In Gap Analysis: ☐
- Table Alias:
- User Defined-2:
- User Defined-4:
- User Defined-6:
- User Defined-8:
- User Defined-10:

The new table is created and added to the list of existing tables within the environment.



Note: You can edit the table properties by clicking on the Table Name, selecting the 'Table Properties' tab and clicking on the Edit  button.



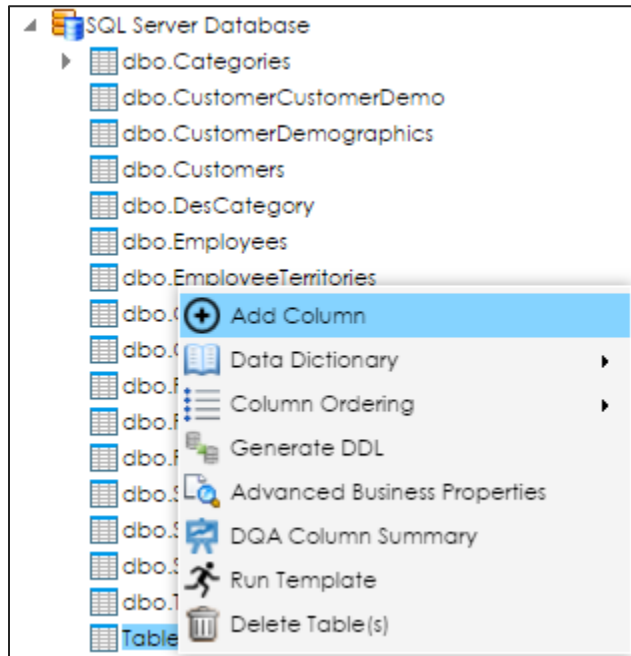



## Create custom Columns:

We can add custom columns to any table from the System Manager module itself.

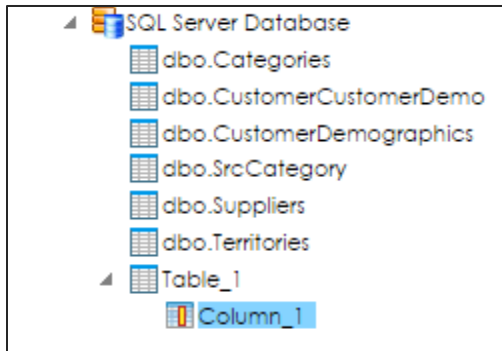
**Note:** You can add new columns to existing tables or new tables.


To add a new table, right click on any table – for example right click on the 'Table\_1' table and select the 'Add Column Option'

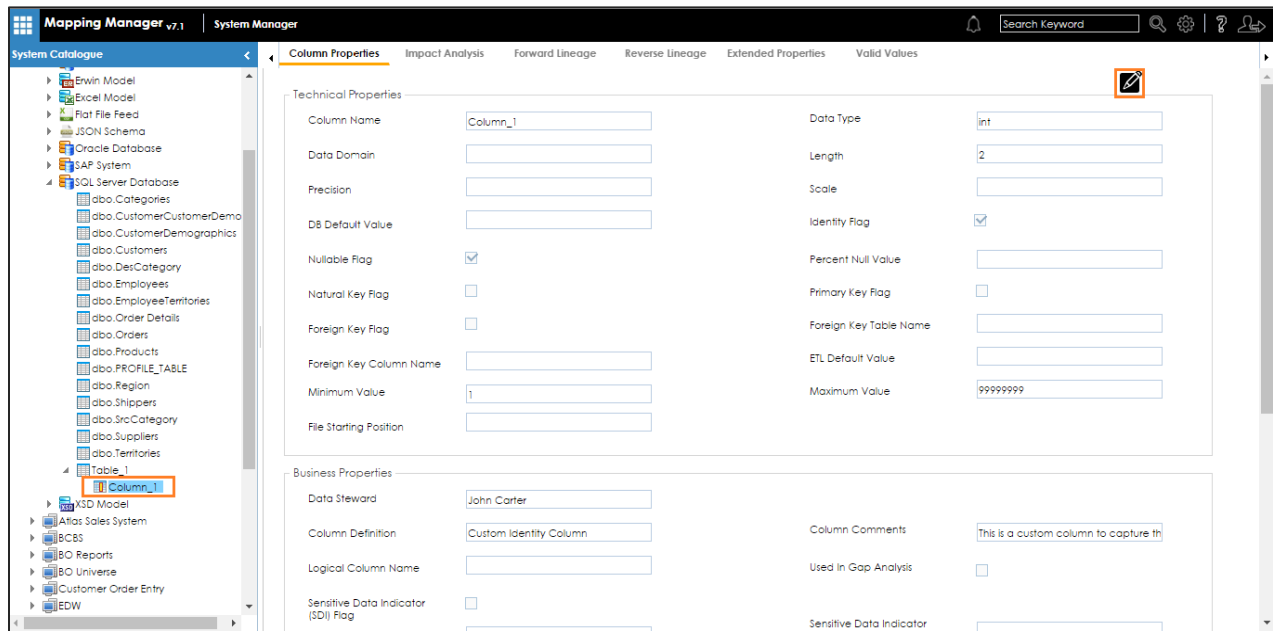


The 'Add New Column' popup window is displayed. Enter the column name (mandatory field) and the other parameters (optional) as required and click on the Save button 

The new column is created and added to table.



Note: You can edit the column properties by clicking on the column Name and clicking on the Edit  button in the 'Column Properties' tab.

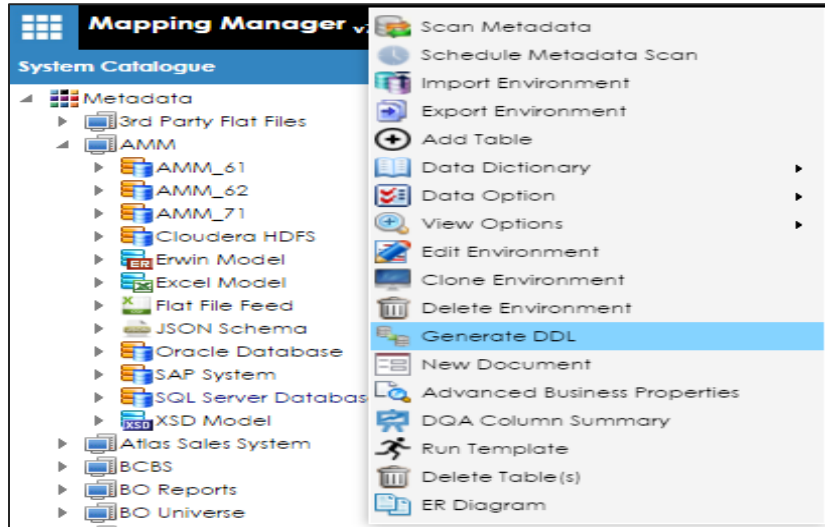


## Generating DDL at Environment/Table Level

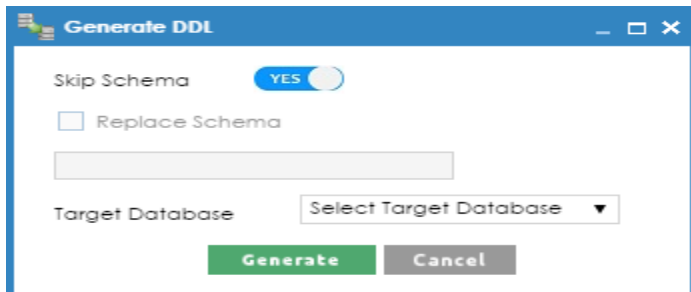
You can generate DDL for the whole environment or for a single table or multiple tables.

### Generate DDL at the environment level:

To generate DDL for all the tables in the environment, right click on any environment – for example right click on the 'SQL Server Database' environment and select the 'Generate DDL' option.



The 'Generate DDL' popup window is displayed



You have the following options to choose from:

**Skip Schema** – By default this option is set to 'Yes' and this will skip the schema name while generating the DDL. Set the option to 'No' if you want to retain the schema name while generating the DDL.

**Replace Schema** – This option will replace the existing schema name with the value entered in the textbox. This option will get enabled only when you set the 'Skip Schema' option to 'No'. Select the 'Replace Schema' checkbox and enter a corresponding value in the text box. Ignore this option if you do not want to replace your existing Schema name.

**Target Database** – Currently we create DDLs for 2 types of Databases – SQL Server and Oracle. Please select the database type for which you wish to create the DDL.

Select the requisite options and click on the 'Generate' button

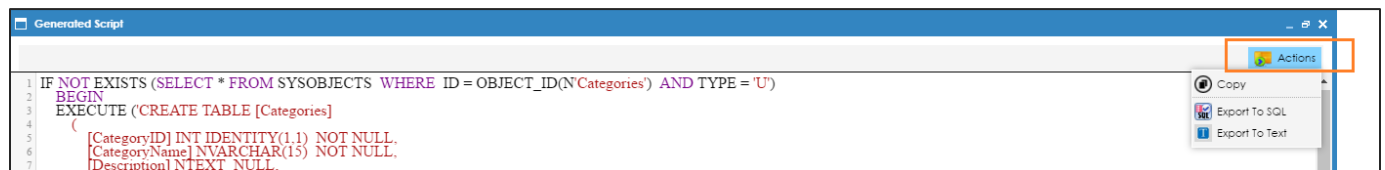
The DDL that is generated is shown in the 'Generated Script' window.

```

1 IF NOT EXISTS (SELECT * FROM SYSOBJECTS WHERE ID = OBJECT_ID(N'Categories') AND TYPE = 'U')
2 BEGIN
3 EXECUTE ('CREATE TABLE [Categories]
4 (
5 [CategoryID] INT IDENTITY(1,1) NOT NULL,
6 [CategoryName] NVARCHAR(15) NOT NULL,
7 [Description] NTEXT NULL,
8 [Picture] IMAGE NULL,
9 CONSTRAINT [PK_Categories_CategoryID] PRIMARY KEY ([CategoryID])
10 )')
11 END
12 GO
13 IF NOT EXISTS (SELECT * FROM SYSOBJECTS WHERE ID = OBJECT_ID(N'CustomerCustomerDemo') AND TYPE = 'U')
14 BEGIN
15 EXECUTE ('CREATE TABLE [CustomerCustomerDemo]
16 (
17 [CustomerID] NCHAR(10) NOT NULL,
18 [CustomerTypeID] NCHAR(20) NOT NULL,
19 CONSTRAINT [PK_CustomerCu_CustomerID] PRIMARY KEY ([CustomerID], [CustomerTypeID]),
20 CONSTRAINT [FK_CustomerCu_CustomerID] FOREIGN KEY ([CustomerID]) REFERENCES [CUSTOMERS] ([CUSTOMERID]),
21 CONSTRAINT [FK_CustomerCu_CustomerTy] FOREIGN KEY ([CustomerTypeID]) REFERENCES [CUSTOMERDEMOGRAPHICS] ([CUSTOMERTYPEID])
22 )')
23 END
24 GO
25 IF NOT EXISTS (SELECT * FROM SYSOBJECTS WHERE ID = OBJECT_ID(N'CustomerDemographics') AND TYPE = 'U')
26 BEGIN
27 EXECUTE ('CREATE TABLE [CustomerDemographics]
28 (
29 [CustomerTypeID] NCHAR(20) NOT NULL,
30 [CustomerDesc] NTEXT NULL,
31 CONSTRAINT [PK_CustomerDe_CustomerTy] PRIMARY KEY ([CustomerTypeID])
32 )')
33 END
34 GO
35 IF NOT EXISTS (SELECT * FROM SYSOBJECTS WHERE ID = OBJECT_ID(N'Customers') AND TYPE = 'U')
36 BEGIN
37 EXECUTE ('CREATE TABLE [Customers]
38 (
39 [CustomerID] NCHAR(10) NOT NULL,
40 )')
41 END
42

```

Click on the 'Actions'  button on the top right corner of the 'Generated Script' window.



The following options are shown:

Copy – This option can be used to copy the generated DDL so that you can paste it wherever needed.

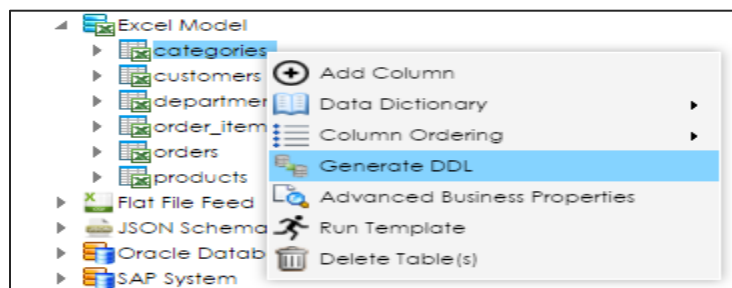
Export to SQL – This will export the generated DDL into .sql file.

Export to Text – This will export the generated DDL into .txt file.

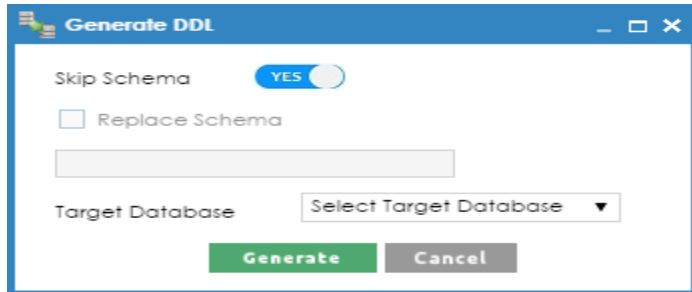
### Generate DDL at the table level:

You can generate DDLs for a single/multiple tables.

To generate DDL for a table, right click on the table – for example right click on the 'categories' table and select the 'Generate DDL' option



The 'Generate DDL' popup window is displayed



You have the following options to choose from:

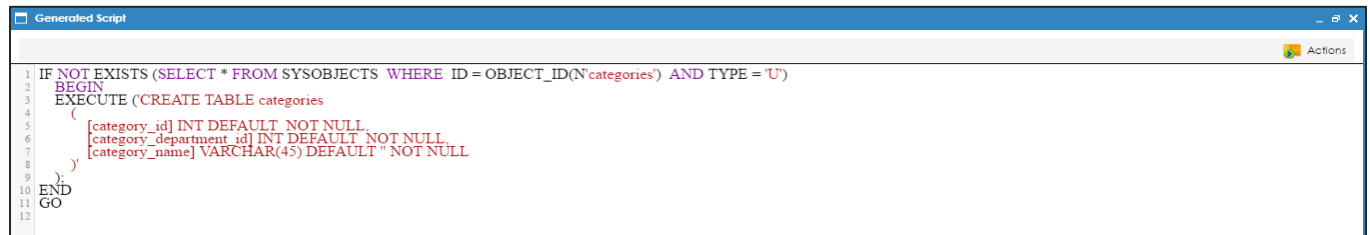
**Skip Schema** – By default this option is set to 'Yes' and this will skip the schema name while generating the DDL. Set the option to 'No' if you want to retain the schema name while generating the DDL.

**Replace Schema** – This option will replace the existing schema name with the value entered in the textbox. This option will get enabled only when you set the 'Skip Schema' option to 'No'. Select the 'Replace Schema' checkbox and enter a corresponding value in the text box. Ignore this option if you do not want to replace your existing Schema name.

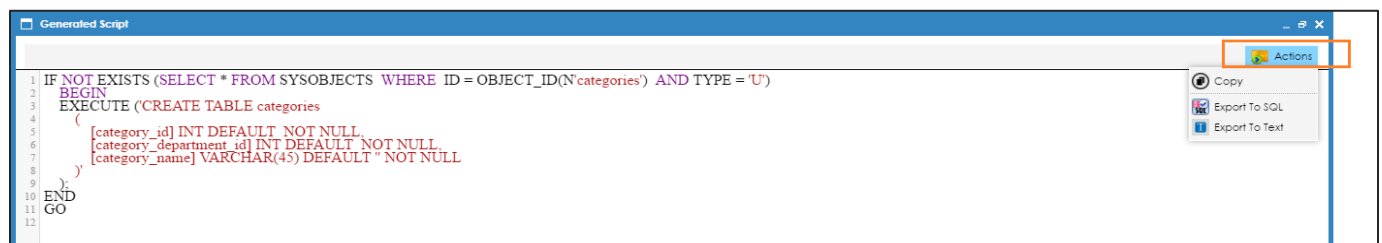
**Target Database** – Currently we create DDLs for 2 types of Databases – SQL Server and Oracle. Please select the database type for which you wish to create the DDL.

Select the requisite options and click on the 'Generate' button

The DDL that is generated is shown in the 'Generated Script' window.



Click on the 'Actions' button on the top right corner of the 'Generated Script' window.



The following options are shown:

**Copy** – This option can be used to copy the generated DDL so that you can paste it wherever needed.

**Export to SQL** – This will export the generated DDL into .sql file.

**Export to Text** – This will export the generated DDL into .txt file.

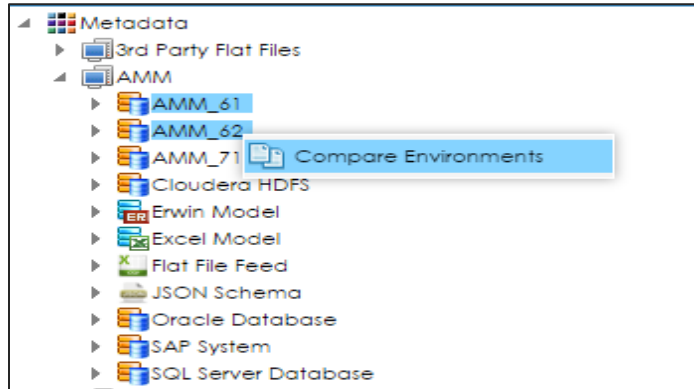
**NOTE:** To create DDLs for multiple tables within an environment, select multiple tables using the 'CTRL' button, right click and select the 'Generate DDL' option

## Compare Environments/Tables in SM

You can compare the metadata between two environments/tables from the System Manager module.

### Compare Environment:

To compare two environments, select the two environments using the CTRL key, right click and select the 'Compare Environments' option. It will show the comparison at the Table level and the Column Level.



**Table Level Changes:** Any differences in the Table Definition, Logical Name and the Comments will be captured and the differences are highlighted in red color. It will also display those tables which exist in one environment but not in the other.

Compare Environments						
Table Level Changes		Column Level Changes				
Change Description	System Name	Environment	Table	Definition	Logical Name	Comments
Table Definition , Table Logical Name , Table Comments	AMM	AMM_61	dbo.ADS_KEY_VALUE	KEY_VALUE TABL		This is in v6.1
Table Definition , Table Logical Name , Table Comments	AMM	AMM_62	dbo.ADS_KEY_VALUE	KEY VALUE TABLE	KEY_VALUE_PAIRS	This is in v6.2
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_BLOB_TRIGGERS			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_CALENDARS			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_CRON_TRIGGERS			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_FIRED_TRIGGERS			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_JOB_DETAILS			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_LOCKS			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_PAUSED_TRIGGER_G			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_SCHEDULER_STATE			
Table Exists in one Environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_SIMPLE_TRIGGERS			

**Column Level Changes:** Any differences in the Column Data Type, Length, Precision, Scale, Primary Key, Natural Key, Foreign Key, Nullability, Column Definition, Logical Name and the Comments will be captured and the differences are highlighted in red color. It will also display those columns which exist in one environment but not in the other.

Compare Environments																
Table Level Changes																
Column Level Changes																
Change Description	System Name	Environment	Table	Column	Data Type	Length	Precision	Scale	Primary Key	Natural Key	Foreign Key	Nullable	Column Definition	Column Logical Name	Column Comments	
Data Type, Length, Precision, Primary Key, Natural Key, Nullable, Logical Column Name, Column Comments	AMM	AMM_61	dbo.ADS_KEY_VALUE	DATATYPE_ID	bigint	8	19	0	Y	N	Y	N	Data type IDs	DATATYPE61	This is in 6.1	
Data Type, Length, Precision, Primary Key, Natural Key, Nullable, Logical Column Name, Column Comments	AMM	AMM_62	dbo.ADS_KEY_VALUE	DATATYPE_ID	int	2	10	0	N	Y	Y	Y	Data type IDs	DATATYPE 62	This is in 6.2	
Nullability	AMM	AMM_61	dbo.ADS_KEY_VALUE	KEY_NAME	varchar	4000	0	0	N	N	N	Y				
Nullability	AMM	AMM_62	dbo.ADS_KEY_VALUE	KEY_NAME	varchar	4000	0	0	N	N	N	N				
Length, Precision, Scale, Column Definition, Column Comments	AMM	AMM_61	dbo.ADS_KEY_VALUE	KV_ID	bigint	10	25	10	Y	N	N	N	This is Key Value ID		Captures the il values for Key pairs	
Length, Precision, Scale, Column Definition, Column Comments	AMM	AMM_62	dbo.ADS_KEY_VALUE	KV_ID	bigint	8	19	0	Y	N	N	N				
Column Exists in one environment and not the other	AMM	AMM_62	dbo.AMM_SDLR_BLOB_TRIGGERS	BLOB_DATA	image	16	0	0	N	N	N	Y				

NOTE: Both these reports can be exported to excel using the export to excel  button.

### Compare Tables:

To compare two tables, select the two tables using the CTRL key, right click and select the 'Compare Environments' option. It will show the comparison at the Table level and the Column Level.

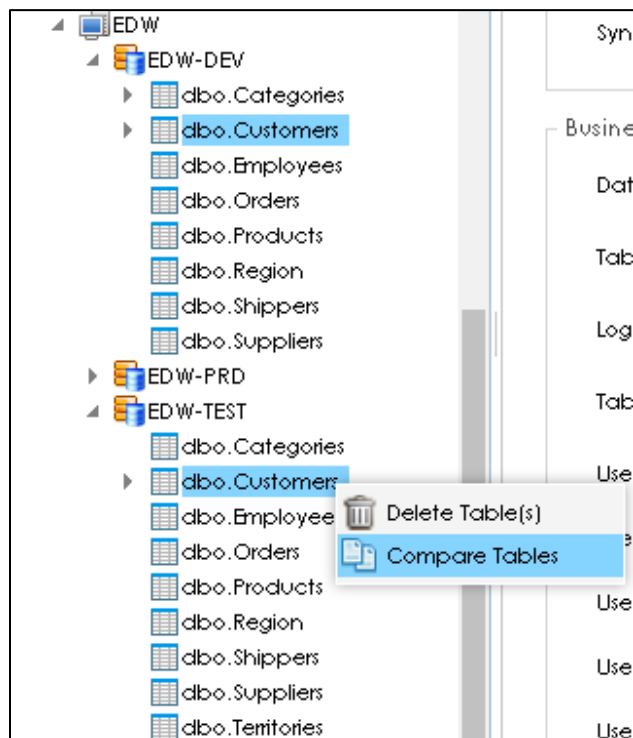


Table Level Changes: Any differences in the Table Definition, Logical Name and the Comments will be captured and the differences are highlighted in red color. It will also display those tables which exist in one environment but not in the other.

Compare Tables						
Table Level Changes						
Change Description	System Name	Environment	Table	Definition	Logical Name	Comments
Table Definition , Table Logical Name , Table Comments	EDW	EDW-DEV	dbo.Customers	Details of the customers will be stored	Cust_Tab	Customers Information
Table Definition , Table Logical Name , Table Comments	EDW	EDW-TEST	dbo.Customers		Customer_tab	

**Column Level Changes:** Any differences in the Column Data Type, Length, Precision, Scale, Primary Key, Natural Key, Foreign Key, Nullability, Column Definition, Logical Name and the Comments will be captured and the differences are highlighted in red color. It will also display those columns which exist in one environment but not in the other.

Compare Tables															
Column Level Changes															
Change Description	System Name	Environment	Table	Column	Data Type	Length	Precision	Scale	Primary Key	Natural Key	Foreign Key	Nullability	Column Definition	Column Logical Name	Column Comments
Length, Column Comments	EDW	EDW-DEV	dbo.Custom	Address	nvarchar	200	0	0	N	N	N	Y			Length updated in DEV
Length, Column Comments	EDW	EDW-TEST	dbo.Custom	Address	nvarchar	60	0	0	N	N	N	Y			
Length, Column Comments	EDW	EDW-DEV	dbo.Custom	ContactName	nvarchar	100	0	0	N	N	N	Y			Length updated in DEV
Length, Column Comments	EDW	EDW-TEST	dbo.Custom	ContactName	nvarchar	30	0	0	N	N	N	Y			

NOTE: Both these reports can be exported to excel using the export to excel  button.